

THE AMERICAN PSYCHOLOGIST

VOLUME 11



NUMBER 4

April, 1956

Published Monthly by

THE AMERICAN PSYCHOLOGICAL ASSOCIATION, INC.

Morgan's

INTRODUCTION TO PSYCHOLOGY

694 pages, \$6.00

CLIFFORD T. MORGAN

*Professor of Psychology
The Johns Hopkins University*

This new and different text presents the principles and applications of modern psychology in readable and interesting form. It is intended for the first college course in psychology, ordinarily taken by freshmen and sophomores. Comprehensive in coverage, it is also suitable both for the terminal course and for the course prerequisite to other psychology courses. It presents a broad perspective of psychology, including both its physiological and social aspects.

Thoroughly up to date and abreast of developments in the different areas of psychology, this outstanding new book is more practical in its approach. In addition, it is less discursive, much easier to understand and more applicable to everyday problems. Chapters not usually found in such books are: a) Prejudice and Social Conflict; b) Work and Efficiency; c) Language and Speech; d) Internal Environment; e) Animal Behavior; f) Techniques of Study. It is the only text to include an effective "summary" and a Glossary.

FILMS CORRELATED WITH TEXTS IN PSYCHOLOGY

— Now in Preparation — Produced by Herbert Kerkow —

- a) Individual Differences b) Common Fallacies on Group Differences
- c) Learning, Part I:
Acquisition, Extinction and Reconditioning
- d) Learning, Part II:
Stimulus, Discrimination and Response Differentiation
- e) Learning, Part III:
Schedules of Reinforcement
- f) Conflict
- g) Perception and Attention h) The Nervous System

It is less technical, more interesting, covers a wider range of subject matter, and contains an abundance of excellent illustrations.

OUTSTANDING TEACHING AIDS

STUDENT WORKBOOK—A Valuable Student Aid Will Be Ready for Fall Classes
TEACHER'S MANUAL—Contains objective examination questions.

• ———— Send for a Copy on Approval ———— •

McGraw-Hill Book Company, Inc.



330 West 42nd Street

New York 36, N. Y.

THE AMERICAN PSYCHOLOGIST

The Professional Journal of the American Psychological Association, Inc.

Volume 11

April, 1956

Number 4

In this Issue

General Arrangements: Sixty-Fourth Annual Convention of the American Psychological Association. GEORGE S. SPEER	173
A Time Microscope. LINDSEY R. HARMON	176
Comparative Psychology in Wildlife Conservation. ORVILLE A. SMITH, JR., AND AELRED D. GEIS	183
The Teaching of Psychology in High School. T. L. ENGLE AND M. E. BUNCH	188
Elementary Psychology for Eighth Graders? JOSEPH B. PATTI	194
On the Practice of Psychotherapy by the Nonmedically Trained. WAYNE ANDERSON	197
A Psychology Colloquium to Stimulate Research Interest. ROBERT M. GUION	199
The Use of Magnetized Tape Recording in Psychological Laboratories. W. N. MCBAIN	202
Current Activities of the Policy and Planning Board	204
Comment	206
High School Teachers of Psychology and APA. T. L. ENGLE	
Reprints: The New Ethic. EDWIN G. BORING	
Manners, Money, and Reprints. CLIFFORD T. MORGAN	
Thoughts on the Proposal that the Number of Divisions of the American Psychological Association be Reduced. ELAINE F. KINDER	
Psychological Notes and News	210
Convention Calendar	218
Application for Hotel Accommodations	219
Advance Registration Form for 1956 APA Convention	220

Editor: Fillmore H. Sanford

Managing Editor: Lorraine Bouthilet

Advisory Editors: Stuart W. Cook, Ann Magaret Garner, and Neal E. Miller

THE AMERICAN PSYCHOLOGIST is published monthly at Prince and Lemon Streets, Lancaster, Pennsylvania. Subscription: \$8.00, single copy: \$1.00. Communications on editorial and business matters and advertising should be addressed to the American Psychological Association, Inc., 1333 Sixteenth Street N.W., Washington 6, D. C. Address changes must reach the Subscription Office by the 25th of the month to take effect the following month. Undelivered copies resulting from address changes will not be replaced; subscribers should notify the post office that they will guarantee second-class forwarding postage. Other claims for undelivered copies must be made within four months of publication.

Entered as second-class matter January 12, 1950 at the Post Office at Lancaster, Pa., under the Act of March 3rd, 1879. Acceptance for mailing at special rate of postage provided for in paragraph (d-2), section 34.40, P. L. and R. of 1948, authorized August 6, 1947.

Copyright © 1956 by the American Psychological Association, Inc.

Officers of the American Psychological Association

President

Theodore M. Newcomb
University of Michigan
Ann Arbor, Michigan

President-elect

Lee J. Cronbach
University of Illinois
Urbana, Illinois

Past President

E. Lowell Kelly
University of Michigan
Ann Arbor, Michigan

Recording Secretary

Launor F. Carter
The RAND Corporation
Santa Monica, California

Treasurer

Carroll L. Shurtle
The Ohio State University
Columbus, Ohio

Executive Secretary

Fillmore H. Sanford
1333 Sixteenth Street N. W.
Washington 6, D. C.

Board of Directors

The President, the President-elect, the Past President, the Recording Secretary, the Treasurer, the Executive Secretary, and Dorothy C. Adkins, Stuart W. Cook, Ann Margaret Garner, Donald O. Hebb, Donald W. MacKinnon, Neal Miller

The American Psychological Association, founded in 1892 and incorporated in 1925, is the major psychological organization in the United States. The purpose of the APA is to advance psychology as a science, as a profession, and as a means of promoting human welfare. It attempts to further these objectives by holding annual meetings, publishing psychological journals, and working toward improved standards for psychological training and service. The APA maintains an office in Washington, D. C., which acts as a coordinating center for all APA activities. The staff is always glad to answer inquiries from individual members and from the public.

In addition to journals, the APA publishes a monthly *Employment Bulletin*, which lists job vacancies, and availability notices of APA members. Subscription: for APA members, \$2.00 a year; for non-members, \$4.00 a year. For detailed information about the *Bulletin*, write to the APA office at the address given below.

All general communications, inquiries concerning membership, letters concerning dues, subscriptions, and changes of address should be directed to:

American Psychological Association, Inc.
1333 Sixteenth Street N. W.
Washington 6, D. C.

Publications of the American Psychological Association

American Psychologist. Editor: FILLMORE H. SANFORD, American Psychological Association. Contains all official papers of the Association and articles concerning psychology as a profession; monthly. Subscription: \$8.00 (Foreign \$8.50). Single copies, \$1.00.

Contemporary Psychology. Editor: EDWIN G. BORING, Harvard University. Contains critical reviews of books, films, and other material in the field of psychology; monthly. Subscription: \$8.00 (Foreign \$8.50). Single copies, \$1.00.

Journal of Abnormal and Social Psychology. Editor: M. BREWSTER SMITH, Social Science Research Council, New York City. Contains original contributions in the field of abnormal and social psychology, and case reports; bimonthly, two volumes per year. Subscription: \$16.00 for 2 vols. (Foreign \$16.50). Single copies, \$3.00.

Journal of Applied Psychology. Editor: JOHN G. DARLEY, University of Minnesota. Contains material covering applications of psychology to business, industry, and education; bimonthly. Subscription: \$8.00 (Foreign \$8.50). Single copies, \$1.50.

Journal of Comparative and Physiological Psychology. Editor: HARRY F. HARLOW, University of Wisconsin. Contains original contributions in the field of comparative and physiological psychology; bimonthly. Subscription: \$8.00 (Foreign \$8.50). Single copies, \$1.50.

Journal of Consulting Psychology. Editor: LAURANCE F. SHAFFER, Teachers College, Columbia University. Contains research relevant to clinical psychology—psychological diagnosis, psychotherapy, personality, and psychopathology; bimonthly. Subscription: \$8.00 (Foreign \$8.50). Single copies, \$1.50.

Journal of Experimental Psychology. Editor: ARTHUR W. MELTON, AF Personnel and Training Research Center, Lackland AFB, San Antonio, Texas. Contains original contributions of an experimental character; monthly, two volumes per year. Subscription: \$16.00 for 2 vols. (Foreign \$16.50). Single copies, \$1.50.

Psychological Abstracts. Editor: C. M. LOUITT, Wayne University. Contains noncritical abstracts of the world's literature in psychology and related subjects; bimonthly. Subscription: \$16.00 (Foreign \$16.50). Single copies, \$3.00.

Psychological Bulletin. Editor: WAYNE DENNIS, Brooklyn College. Contains evaluative reviews of research literature, and articles on research methodology in psychology; bimonthly. Subscription: \$8.00 (Foreign \$8.50). Single copies, \$1.50.

Psychological Monographs: General and Applied. Editor: HERBERT S. CONRAD, U. S. Office of Education, Washington, D. C. Contains longer researches and laboratory studies which appear as units; published at irregular intervals, about twenty numbers per year. Subscription: \$8.00 per volume (Foreign \$8.50). Single copies, price varies according to size.

Psychological Review. Editor: THEODORE M. NEWCOMB, University of Michigan. Contains original contributions of a theoretical nature; bimonthly. Subscription: \$8.00 (Foreign \$8.50). Single copies, \$1.50.

Send subscription orders to:
American Psychological Association
1333 Sixteenth Street N. W.
Washington 6, D. C.

GENERAL ARRANGEMENTS: SIXTY-FOURTH ANNUAL CONVENTION OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

Chicago, Illinois, August 30–September 5, 1956

GEORGE S. SPEER, *APA Convention Manager*

THIS announcement is concerned with the details of local arrangements for the 1956 Convention, rather than with the Program. The Call for Papers and Symposia and regulations concerning other meetings can be found in the February 1956 *American Psychologist*.

Local arrangements are being handled by a Local Arrangements Committee consisting of the Convention Manager and a number of subcommittee chairmen who are responsible for various details of the Convention. Members interested in matters handled by the subcommittees are requested to communicate directly with the appropriate chairman. On matters not covered by these subcommittees, members should write to George S. Speer, APA Convention Manager, Illinois Institute of Technology, 3329 South Federal Street, Chicago 16, Illinois.

Time and Place of Meetings: Thursday, August 30, through Wednesday, September 5, 1956, in Chicago, Illinois. Meetings will be held in two hotels, which are only two blocks apart: Hotel Sherman, Clark at Randolph Streets, and Morrison Hotel, Clark at Madison Streets.

Chicago is a sprawling, bustling city of many contrasts and many attractions. Its desirability as a convention site is attested by the fact that each year more conventions are held in Chicago than in any other city in the country. Its cosmopolitan restaurants, night spots, theaters, hotels, and world-famous stores are largely concentrated in or near the same Loop area in which our meetings will be held. In addition to the unique Well of the Sea and Porterhouse restaurants at the Sherman, and the Boston Oyster House at the Morrison, there are, within a few blocks, restaurants serving typical Armenian, English, French, Greek, German, Chinese, Italian, and Turkish meals. Other well-known points of interest are the beaches, State Street and Michigan Avenue

shops, Museum of Natural History, Merchandise Mart, Chicago Board of Trade, and the Stock Yards.

Hotel Reservations: A hotel reservation application blank is printed on page 219. Members should complete this form and mail it to the APA Housing Bureau, Hotel Sherman. Members are urged to apply as early as possible in order to be assured of accommodations.

There are several reasons why it is desirable and important that those attending the meetings identify themselves as members or guests of the APA Convention: (a) The APA has guaranteed both hotels a specified number of sleeping rooms in return for free meeting space. It is, therefore, necessary that APA members assist in helping the Convention to meet these commitments. (b) As the APA has first claim on all rooms in the two hotels, members are more likely to obtain the accommodations they desire through established convention procedures. (c) In the event that both headquarter hotels are filled, accommodations in other nearby hotels can be more easily secured by the hotels than by individual members.

Attention is called to the wide range of accommodations available in both hotels. Graduate students and younger members will be especially pleased by the dormitory-style rooms available in both hotels. The Local Arrangements Committee feels quite confident that the members' convenience, comfort, and needs can best be served in these two hotels, and members are urged to use the printed registration blank, or to identify themselves as APA members if making reservations in some other way.

Your attention is also invited to Table 1 which gives the tentative schedule for divisional programs. Although minor revisions may be necessary when the program schedule is completed, members may plan their attendance with the ex-

TABLE 1
CONVENTION SCHEDULE

Aug. 30 Thur.	Aug. 31 Fri.	Sept. 1 Sat.	Sept. 2 Sun.	Sept. 3 Mon.	Sept. 4 Tues.	Sept. 5 Wed.
Clinical ^a →			A P A	Experimental		
				Clinical		
School	Clinical	Educational		Measurement ^b		
Pers. & Soc. →				Child Pers. & Soc.		
			D A V	Esthet.		General
				Teaching		
Consult.	Mat. and Old Age	SPSSI →		SPSSI		
				Military		
	Counseling	Pub. Serv.	Indus. & Bus.			

^a Including Society for Projective Techniques.

^b Including Psychometric Society.

pectation that the final program will bear close resemblance to this schedule.

Convention registration: Members are urged to register in advance to minimize the delay upon arrival at the meetings. An advance registration form is printed on page 220 of this issue. Those who register in advance will check in at the Advance Registration desk, Hotel Sherman, and will find the process short and simple. *Please note that on Wednesday, August 29, registration will be in the Crystal Room of the Hotel Sherman on the First Floor, from 1:00 to 5:00 P.M.* On all other days registration will be from 9:00 to 5:00 P.M., on the Mezzanine Floor, Hotel Sherman. Registration activities will be under the supervision of John Cotton, Northwestern University, Evanston, Illinois.

Directory of Convention registrants: A directory of members and guests registered at the Convention will be maintained on the Mezzanine Floor of the Sherman. A mail box and bulletin board will be located nearby. Members will assist both themselves and their friends by registering as early as possible. Thomas Kennedy, Loyola University, 6525 Sheridan Road, Chicago, Illinois, will be in charge of these services.

Information desk: An information desk will be maintained at the Sherman. Personnel at this desk will provide Convention information and room locations of all scheduled events, as well as information about restaurants, local points of in-

terest, and recreational facilities. These services will be under the direction of William C. Krathwohl, Institute for Psychological Services, 3329 South Federal Street, Chicago 16, Illinois.

Special events: Requests for luncheons and dinners for APA Boards, Divisions, Committees, and special interest groups which are to be announced in the Program must be in the hands of the Chairman of the APA Program Committee (Richard P. Youtz, Barnard College, 607 West 119th Street, New York 27, New York) not later than May 15, 1956. Requests made after May 15 should be made to the Chairman of the Local Committee on Special Events.

Arrangements for all special events in the two hotels must be made through the Special Events Chairman, who will also arrange for the printing of tickets. Tickets for special events will be sold at a Special Events desk at the Sherman Hotel. Individual organizations desiring special events will be responsible for guarantees to the hotels. The minimum cost per person for group affairs in private dining rooms, with gratuities and tax included, is: breakfast \$2.50, lunch \$3.60, and dinner \$4.80. Because of the high added costs, members are urged to avoid meal functions on Sunday, September 2, or Labor Day, September 3. The Chairman of the Local Arrangements Committee on Special Events is Joseph Harney, Wright Junior College, Chicago, Illinois.

Exhibits: The exhibit area will be in the Hotel Sherman, adjacent to the registration and main meeting areas. For information concerning facilities, arrangements, costs, etc., those who wish to exhibit should write to the Chairman of the Local Arrangements Committee on Exhibits, Maurice O. Burke, Institute for Psychological Services, 3329 South Federal Street, Chicago 16, Illinois.

A wide variety of interesting and novel exhibits has already been arranged, including some new and unique features which will be introduced at this meeting. There is still space for many others, however, and members are encouraged to suggest the names of potential exhibitors to the Exhibits Chairman.

Public relations: A press room will be maintained in the Hotel Sherman. Public relations will be coordinated by Willard A. Kerr, Illinois Institute of Technology, Chicago 16, Illinois, and by Michael Amrine, APA Public Relations Consultant.

Placement: A Placement Office will be main-

tained in the Hotel Sherman under the direction of Roderick Bare of the APA Central Office. The Placement Office will be open every day except Sunday, September 2, throughout the Convention.

Projection equipment: Requests for projection equipment should be addressed to Leonard Diamond, Northwestern University, Evanston, Illinois. *In making requests for projection equipment be sure to specify exactly the type of equipment required.* While every effort will be made to supply the appropriate equipment, authors of papers are urged to use mimeographed tables and charts rather than slides.

Arrangements for the care of children: Members interested in securing individuals to care for their children or in obtaining suggestions for trips and outings for children should inquire at the information desk. Members who contemplate using such services are reminded that the Convention coincides with vacation periods for all the schools in this area, and are urged to make their arrangements early. The Chairman of this Committee is Mrs. Charlotte Altman, Institute for Juvenile Research, 907 South Wolcott Avenue, Chicago 12, Illinois.

Parking and transportation: There are a number of private and municipally operated garages located near the hotels. Parking in the private garages is about \$3.95 for 24 hours. In the self-parking municipally operated garages, the cost is about \$1.95 for 24 hours. Taxi service is plentiful. Both hotels are on, or close to, main streetcar and bus lines, and both are close to railroad, bus, and airline terminals.

Preconvention sessions: As indicated in the "Call for Papers and Symposia" in the February

1956 *American Psychologist*, it is expected that there will be few requests for preconvention sessions. The APA Program Committee *will not take responsibility* for the scheduling of sessions to be held prior to August 30, but it will list them in the Convention program provided the necessary information reaches the Chairman of the APA Program Committee by May 15. This information should include time of meetings, room assignments, topics, and names of participants. The Convention Manager will assist in the scheduling of preconvention sessions, but the responsibility for hotel reservations and meeting rooms rests with the persons concerned.

Publication of Convention program: As was done last year, the condensed program schedules will be printed separately as an $8\frac{1}{2} \times 5\frac{1}{2}$ booklet and mailed to all members in early July. In addition to the complete program and time schedule, this booklet will include last-minute information about the Convention, changes in local arrangements, the block time schedule for divisions, and a list of special meetings, dinners, luncheons, social hours, and other miscellaneous functions for which arrangements have been completed by mid-June. This plan, designed to provide members with Convention information in a pocket-size booklet which they can carry to the meetings, has no effect upon the publication of abstracts of papers. These will appear in the August issue of the *American Psychologist* as usual.

Convention lounge: A Convention Lounge will be open to members and guests every day in the Bal Tabarin, Sixth Floor, Hotel Sherman, from 4:00 P.M. Members are urged to plan to make this their headquarters for informal get-togethers.

A TIME MICROSCOPE

LINDSEY R. HARMON

National Research Council

PSYCHOLOGISTS, like people in general, vary in their understanding and appreciation of such disciplines as higher mathematics and electronics. To many, no doubt, these fields are terra incognita, awe-inspiring but incomprehensible. When the two fields are joined, as they are in the automatic digital computers—the “giant brains” of the headline writers—psychologists are certain to have mixed feelings. Knowing something of the brain and how it works, they are frequently repelled by the over-simplification involved in that appellation. At the same time, the complexities of these engineering marvels lend an air of mystery that compounds the difficulty of understanding and of using these machines for the solution of psychological problems.

If we can overcome these inhibitions, perhaps we can harness these demons of speed for our own uses. The needed perspective can perhaps be gained most readily if we start, not with the machines and their remarkable powers, but with ourselves and our ways of perceiving. Speed is the outstanding feature of the electronic computers, and speed involves our concept of time and the ways we perceive the passage of time.

It is said that a traveler in Tibet could not make the natives there understand what he meant by the time his watch recorded. A minute or an hour was too foreign to their culture and understanding. What did have meaning was something like, “While you might drink a cup of tea,” or “In the time it would take an eagle to fly to yonder mountain top.” Time had meaning in terms of activity, human activity. In one case the human time observer was himself drinking a cup of tea. In the other case he was more passive—watching and subjectively recording some other process of nature—a process that involved space and motion as a measure of time. And so it is, really, with all our time. A day in our lives denotes a certain round of activity. And a day is also the time it takes the earth to revolve once on its axis. A year is everything that happens between two birthdays, and a

year is also the time it takes the earth to revolve once around the sun. We choose as measures the physical events of nature, rather than the private events of our daily doings, mainly to simplify communication. The earth revolves at the same speed for everyone, but you gulp your cup of tea while I sip mine. The one unit affords the same reference points for all of us, and its variations are small. The other unit affords reference points to only one or a few of us, and its variations are large. So we choose the former.

Yet this choosing is not simple: the choice requires a lot of learning, and we know in fact that a human being must acquire about half his mental stature before he is able to grasp and use the arbitrary units of time represented by the hands of a clock. Our units of time are convenient arbitrary units, useful primarily in coordinating our activities with others in a complex society. A clock has recently been invented which records on one face, earth time, and on another, Mars time, anticipating space travel and the problem of coordinating the time systems of the two different planets where days and years are of different duration. But for us (and perhaps for the Martians, too, if there are any) the real time we subjectively experience is much more primitive. It represents waking, dressing, eating, working, playing, finally going to sleep again. In its perception we have much in common with our distant cousin on the Tibetan plateau.

We speak of “the minute that seems a year” or of “time passing swiftly.” In these expressions we reveal the subjective nature of time as we experience it, and we glimpse its “structure” in terms that have real, if subjective, meaning. If we pack a great deal of activity into a given arbitrary unit of time, it seems in passing to be a very short time, but in retrospect to have been a long time. From our subjective point of view, then, time is best measured in terms of the activities accomplished during its passing. When we so view it, we see that it is compressed or expanded by conditions that affect the rate at which things happen.

That is, if enough events occur in a short period of time—events that would normally take a long time—we have, as it were, refined the structure of time. Viewed subjectively, we have magnified it. A machine, therefore, that makes things happen faster is a sort of time machine. If it makes them happen fast enough, it becomes what I have chosen to call a time microscope. Now this sort of time machine, unlike the time machine of H. G. Wells, actually exists. In the sense in which we have been speaking, it allows us to peer into the structure of time, and see things happening faster, much faster than most of us would suppose was possible.

If this idea seems strange at first, let's look for a moment through the other end of the microscope, and watch things happen more slowly. The picture may be a bit more familiar, perhaps a bit less strange, but surely no less interesting. It may help us to get perspective not only on the time microscope, but on the real, undistorted time of our daily lives.

We speak of time in terms of space, and scarcely give a thought to the concept of relativity. "The world is shrinking," we say, because we can travel around it now in a few days, rather than in the months or years our ancestors required. We live "30 minutes" from work, not $8\frac{1}{2}$ miles. We shift our attention from our world to outer space and speak not of miles or minutes, but of "light years" because the distances are so great that we need a bigger unit. Now if in thought we should move ourselves out a little more than four of these light years to our nearest neighbor star, Alpha Centauri, and, again, in thought, shrink our solar system down in size to something our finite minds can readily understand in terms of daily experience, we arrive at a most interesting state of affairs. Let us shrink the sun down to the size of the ball in a ball-point pen. On this scale the earth is a tiny mote of dust revolving around the sun in an orbit about the size of a dinner plate. As speed is relative to size, light now crawls along literally at a snail's pace. It takes about an hour to cross the top of the dinner table the short way.

In this distant perspective the events of human life, and subjective time, take on quite a different aspect. We now have two time schemes. In our exalted state we will think of ourselves as having the normal subjective experiences that we are accustomed to as real human beings. The human

beings on the shrunken earth we are observing have a time scheme appropriate to their size. We note and reflect a bit on their daily doings, their troubles, their hopes, and accomplishments. All pass very quickly. We blink an eye, and the earth passes from the Stone Age to the Atomic Age. We walk a few steps and the earth passes from the Age of Reptiles to the Age of Mammals. All geological time from the Paleozoic on has passed in review since we started on this little space-time journey in print.

Perhaps this time compression is too great. Let's relax a bit. What we have done is to convert time to space and then we've squeezed space so much that the result is all but incomprehensible. To put it on a scale we can more readily deal with, let's "blow up" our universe a million-fold. Our sun now fits neatly in the one-mile space between the White House and the Capitol. Time has slowed down equally, and now we can begin to deal with it. Still, things happen very fast. From our still-exalted position, we note that light now moves with the speed of a supersonic airplane. To the tiny earth-people it moves a million times that fast, but that's nothing, for all their motions are on the same rapid time scale. With every step we take, for them a month has passed. In their time, we started this space-time journey just prior to the Revolutionary War. When one stops to think how much those tiny homunculi get done while we stop to think, it's quite amazing. Busy little creatures, these that we see through our celestial time-telescope. If we could but harness that speed to the accomplishment of our tasks, how much more we could get done in a lifetime!

"If we could . . ." The point is, we can. We, real human beings now, here on earth again, in our own shapes and sizes and living in our accustomed time scheme, can do very nearly what, as celestial creatures of a moment ago, we dreamed of doing. That celestial telescope is our time microscope. Those hurrying homunculi, rushing about their many activities in what seemed from our far perspective such an amazing symphony of coordination, are like the tiny electric impulses of a modern digital computer. Those little pulses, dashing about their tasks with nearly the speed of light, sleeping momentarily as tiny magnetic tracks, picking themselves up and rushing somewhere else, can do routine tasks with a speed quite com-

parable to what we, as celestial observers, saw the tiny earth-men do.

These tiny electric pulses are like a race of creatures whose evolution has progressed as from jellyfish to mammals in a decade. First emerging from analog to digital form in 1939, and speeding up from magnetic relays to electronic tubes during World War II, they have now multiplied and diversified and developed several distinct cultures, as it were. They are still in a rapid state of evolution, and are learning many different ways of going about their business. They have learned new modes of transportation. The little neon tubes of the console of a computer, flickering on and off faster than the eye can follow, like the traffic lights of their copper highways, are earnest of their success in overcoming early traffic bottlenecks. They are finding that they can assume many forms and live and work in environments never before thought possible. We might briefly consider the forms and modes of existence of these pulses as they perform their tasks. That they live in electronic digital machines we know. But how do they get started, what do they do in the machines, and what becomes of them in the end?

A "bit" or "binary digit" or "bit of information" representing a "yes" or "no" on a questionnaire, a portion of a physical quantity, a fraction of time, or any other item of knowledge, comes into being as far as the machine is concerned, as a hole in an IBM card or strip of teletype tape, a struck key on an electric typewriter, or as an electric pulse from some auxiliary equipment such as a telemetering device or some highly specialized television camera. In the old days, a decade ago, information was fed into the machines by hand, for example by setting the pointer of a dial. Now, more rapid methods, such as magnetic tape, feed these bits into the machine at many thousands per second. Having perceived them, the machine must remember them, so they are sent to the memory unit to await further manipulation.

As memory traces, they may have a dynamic existence as an acoustical wave in a mercury tube, or as an excited spot on the face of a cathode ray tube much like a television tube. Or they may passively hibernate as magnetized spots on the surface of a drum or disk or strip of tape. Or they may curl up as a magnetic field in a tiny ferrite ring, little bigger than the head of a pin.

Whatever their mode of existence as a memory

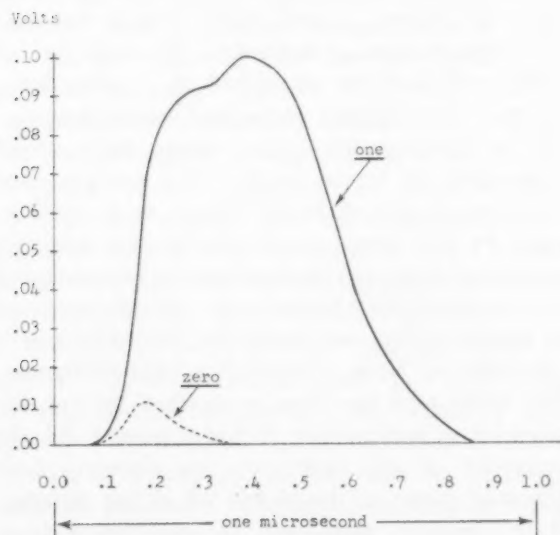
trace, it is likely to be brief—a few seconds or a fraction of a second, as a rule. Then they will be awakened and called up out of the memory to perform some useful task. They may open a gate to let a stream of other pulses pass, may join with others to be counted, or, if needed no more, may simply drop out of existence through a convenient trap door. In the meantime they will have performed any or all of the fundamental arithmetical tasks—adding, subtracting, multiplying, dividing. The way they do it depends on the machine. The end result of their well-disciplined gyrations, a formation of pulses that represents the answer to the problem, will ordinarily be stored briefly in the memory of the machine, and then "read out" as magnetized spots on magnetic tape, as punched holes in a teletype tape, or as an IBM card, or, through auxiliary equipment, as a plotted graph.

These are some of the things these tiny pulses can do today. Nothing remarkable in such performances. Nothing but the speed with which they are done. For a view of how fast they work, let's take a look first through the low-power objective of our time microscope. Let's consider some of the slow and moderate speed processes by which these machines store and process information.

One moderate-speed system involves the memory drum. A relatively large memory drum, by present standards, is a cylinder about a foot in diameter, and perhaps a little more than a foot long. It rotates at almost 3,600 rpm or 60 turns per second. Pulses are fed into it and picked up by means of "reading" and "writing" heads like the pickup of a tape recorder. Once a pulse or "bit" has been fed into the drum, it could not be taken out again for a sixtieth of a second, if the drum had to turn clear around to the same head again. But the drum is equipped with eight sets of heads, equally spaced about the circumference. Thus a bit may be stored and picked up again when the drum has made just $\frac{1}{8}$ of a revolution. At 60 revolutions per second this would be $\frac{1}{480}$ of a second. That is, roughly, two thousandths of a second, or two milliseconds as we read it in our time microscope. Another way of putting it is that, once information has been stored on such a memory drum, we must wait two milliseconds to get it out again. Now that looks like fairly rapid access to us, who are accustomed to the "real time" of normal human existence. It's not so long that we'll get gray hair or grow a long

beard waiting for it. But remember we're using the low-power lens of our time microscope.

Now let's switch to the high-power lens. Distances in our field of view are now measured not in milliseconds—thousandths—but in microseconds—millionths. Now, as it were, we can *really* peer into the structure of time. Actually, we can get a close-up look at these little electrical pulses we've been talking about. We would note, in doing so, that they vary in size and shape according to the kind of machinery they're performing on. A lot of engineering effort has gone into making them short and square so that they can be packed more tightly without overlapping. To avoid confusion and the merging of two pulses into one, they must be kept insulated from one another. The insulation may be in space or time. Spatially, they may be allotted little cubicles, as it were, on the face of the drum or tape, or, as in the magnetic core memory, each "bit" has its own tiny ferrite ring or toroid. We are now interested most in the time dimension. Here's the way a pulse looks as it is drawn out of the ferrite ring of the fast magnetic core memory.



Now that we've gotten accustomed to microseconds—millionths—it is easy to note that our scale is actually graduated in tenths of a microsecond. Electronic tubes exist that can deal with pulses as fast as a billion a second. Perhaps the next decade will see our time microscope resolving differences as small as a billionth. By then we'll probably have to invent a new quick word for it,

such as "becond" or "bec" for short. Actually, we see no end yet to this chopping process—if we can chop a second into a billion parts, why not a trillion? If there is an indivisibly small quantity of time—a temporal quantum—we have not found it yet. But to return to the picture of our microsecond.

Now that we have our little pulse in focus, we note some interesting characteristics. He's doing pretty well at being short and square—only 8/10-microsecond long, and he packs a 1/10-volt wallop. A second look discloses a little companion—a pulse 1/100-volt high and about 3/10-microsecond long. This little fellow really shouldn't be here at all. But he represents the machine's response to a question to which the answer is "zero." It is much like a batter's response to a pitched ball. If he doesn't swing, he nevertheless tenses his muscles and starts to swing, then stops. Such abortive movements can be ignored. Just so, the machine can be set to ignore this little pulse. And it is important that it should ignore him entirely, as it would be a serious mistake for the machine to notice him "just a little bit." We might find that a lot of such "little bits" had added up to a "big bit" and had been treated as a "one" rather than as a "zero." However, the machine can be told to notice only pulses of, say, 5/100 volts or larger. This gives a clear, clean distinction—a "yes" or a "no" and not a "maybe."

Now let's compare our time scales again. The fact is apparent from this microdrawing of the magnetic core pulse that we could insulate it in time with a 1/10 to 2/10 microsecond space and still pack these pulses about one each microsecond. With a magnetic core memory system wired to give arbitrary access to any core with its bit of information without disturbing the pattern of the other cores, we see that we can pick up our information in one microsecond. The computer people would say, "It has an arbitrary access time of one microsecond"—except that perhaps an extra microsecond or two might be required for switching the necessary currents. For a large "memory" with a more complex set of circuits, a five-microsecond access time would be a good working speed. We begin now to appreciate what is meant by high-speed computers. After we have thought for a time in terms of one or a few microseconds, we develop a kind of impatience with slower methods. It's like airplane travel. The novice traveler is

thrilled by flying from, say, Omaha to Minneapolis in five hours. A couple of years later he flies from Minneapolis to Washington, D. C., in about five and a half hours, and then coast-to-coast in a little over eight hours. Now he's spoiled, and gets impatient with the pokey DC-3's that cruise at only 180 miles per hour. So, now that we've learned to think of access time in a few microseconds, we feel that we are standing around on first one foot and then the other, biting our fingernails, waiting 2,000 microseconds for some bit of information out of the memory drum. A few minutes ago, you will recall, that two-millisecond speed seemed almost unbelievable.

The fact is, of course, that the "slower" memories, like the slower planes, have their place and we cannot do without them. The fast and slow memories can be teamed up to perform far more effectively than either one alone. Some information can be picked off a certain space on the drum, processed through various arithmetical operations, and the result stored again on that same vacated space when it passes under the next writing head two milliseconds later. This speed is still too fast for some of our purposes, and we must slow down again to get the information out of the machine and into a form that our senses can perceive, that our minds can understand. The reason for this is that we human beings must read physical symbols, not electric pulses. From electronic speed to the mechanical speed of paper and print is quite a step down. The machine can turn out its results many times as fast as even the fastest electric typewriter can write. So, for economical use of the machines, many are equipped with "read out" mechanisms that store the answers on reels of magnetic tape which, when completed, can be removed from the machine and placed on auxiliary equipment for transcribing. The computer itself, meanwhile, is busy on the next problem.

This transcription process from electronic pulses to printed symbols has itself recently undergone a speed-up of its evolutionary development. Engineers have now produced printout mechanisms with speeds almost as astonishing as those of the computers themselves. Machines now in use printout figures or words far faster than the most rapid reader can read them. This whole story, up to this point, could be copied off from magnetic tape by one of these machines in just half a minute.

Our purpose, in starting on this journey, in peer-

ing through this time microscope, was to get a better perspective on the "giant brains" of the Sunday Supplement stories. We sought the knowledge that might give us understanding, and understanding that we might better harness this electronic speed for the advancement of psychology. Perhaps our journey is not yet completed. We have, perhaps, acquired some understanding of the capabilities of the machines. But have we brought into focus our capabilities for using the machines? Let us consider but a few brief examples.

Many kinds of psychological research work have been limited or left undone simply because of the magnitude of the clerical tasks involved. Storage of the necessary information for certain problems would require dozens of filing cabinets, with thousands of sheets per cabinet drawer. And a corps of file clerks would be necessary to insert the data, and later locate and remove and transcribe them. The work would be slow, costly, and exceedingly dull. Regardless of the great merit of this research and the value of its results, its costs have been out of reach even of government resources. Electronic data-handling can change all this. Instead of file clerks, a few machine-tenders. Instead of banks of filing cabinets, a small shelf to store the reels of magnetic tape or microfilm. A single reel of either will hold the equivalent of a whole filing cabinet. And modern high-speed means can process the data from the original answer sheets almost "untouched by human hands." For example, each response of each of 10,000 people to a questionnaire of 300 items (3,000,000 bits in computer jargon) plus identifying information, can be stored on a single 10-inch reel of tape. It can be stored in random order, and sorted by the machine into the order of serial numbers for ready reference. The whole tape can then be searched for any desired bit of information, in ten minutes. All the responses of any dozen, or any three of four thousand men, can be picked off in ten minutes. A few minutes more, and the machine is busy running computations on the data.

An operational example, rather than research, may be even more striking. Records storage is a problem engendered in part by the slowness of certain clerical operations and in part by their dispersal into thousands of places, to be done by relatively unskilled hands that require extensive supervision. And the supervision is often incomplete and ineffective. Electronics can change all

this—clerical work, storage, and supervision. The following example is now technically possible, although not at present administratively feasible in all its details.

A soldier at Fort Benning completes a series of aptitude tests and hands his paper to the sergeant at the front of the room. He waits a few seconds while the sergeant looks it over to be sure it is properly filled out. It is, and as he starts for the door the sergeant places the answer sheet in a scanner. In a fraction of a second, the entire answer pattern is transmitted to Washington, where it is stored on microfilm or magnetic tape, scored, and the scores flashed back to Fort Benning before the soldier has reached the door. The soldier's qualification card is inserted into a printer which automatically records the test scores in the proper positions, and the sergeant throws the answer sheet in the waste basket. At the end of the day, the accumulated responses, stored on tape in Washington, are statistically processed through a series of predesigned and carefully programmed steps. If there is something wrong with the way the tests have been administered, if there has been fudging or faking on certain tests, that fact shows up through "quality control" techniques built upon test norms, norms of test intercorrelations, and response patterns. Thus a day-by-day quality supervision is maintained by remote control. When the machine signals that something is wrong, the necessary human supervision can be undertaken by the usual routes. And as a by-product, researchers have access to quantities of real live data at no extra cost, and without expensive and time-consuming special data-collection expeditions.

But what of the G.I. whose tests are scored so swiftly? What does it profit him? Are his chances of a good assignment made any better by this speed? They could be. Assignment need no longer be on a local daily quota-filling basis, by relatively unskilled personnel. The whole universe of Army requirements and the nationwide manpower pool can be centrally matched, by people with special knowledge, skill, and responsibility for optimal manpower utilization. For the performance of their task they could bring to bear any of several recently developed mathematical models for optimal assignment. These models, cumbersome to use by manual methods, and inefficient on a small scale, are ideally suited to large-scale problems and to the capabilities of the digital computers. Patterns

of abilities, experience, and education of the recruits can be matched with quota requirements, and the quota requirements can themselves be made more flexible in time, guided in part by the characteristics of the available manpower input week-by-week or even month-by-month. Thus the individual recruit, as well as the system as a whole can benefit by reducing individual malassignments to a minimum.

Difficulties and expense of data-handling at present prevent many personnel departments, including those of the Armed Services, from solving another persistent problem, well understood and keenly felt by many—the "calibration of raters" for hard-easy bias and other biases, so that these biases can be controlled by statistical treatment. In the case of the Army, very minor modifications of forms and procedures could solve this problem simultaneously with others concerned with the processing of Officer Efficiency Reports. A device built by the Bureau of Standards for use by the Census Bureau, dubbed FOSDIC by its builders, could read the reports from microfilm records now made as a matter of routine, score them, compute bias corrections, and derive average scores. All this could now be done electronically, replacing dozens of manual operations now performed by coders, verifiers, keypunch operators, and other clerical personnel. The speed advantage, although minor in the whole context of this data-processing job, would then be combined with a qualitative improvement much desired by officers of all ranks, and particularly recommended by many general officers.

A final example, and one in which the horizons are perhaps as wide as any in psychology, is the analysis of public opinion. How meagre today is our analysis of returns in this enormously complex area! Elementary cross-tabulations are made and reported, but they do not begin to explore the factor structure of public opinion nor show interrelationships in time trends. The work already done in analysis of economic data by high-speed computers has shown that it is quite feasible to build a dynamic model of the whole national economy, the validity of which can be shown by comparison of prediction and subsequent factual survey. By analogy, similar analysis and similar dynamic models of public opinion trends are entirely feasible, and could be similarly validated.

Such development, imaginatively pursued by social psychologists, could lift this area of psychology from the level of characterized by our physical science brethren as "fact-smacking" to the first rungs of the ladder of deductive science.

SELECTED REFERENCES

- BROWN, D. R., & ALBERS-SCHOENBERG, E. Ferrites speed digital computers. *Electronics*, 1953, **26**, 146.
- DAVIS, H. M. Mathematical machines. *Sci. Amer.*, 1949, **180**, 28-39.
- LESSING, L. P. Computers in business. *Sci. Amer.*, 1954, **190**, 21-25.
- WILD, J. J. Design considerations and new developments in the "flying typewriter." Paper read at the 1952 Western Electronic Show and Convention, Long Beach, California, August 29, 1952.
- A survey of automatic digital computers, 1953.* Washington: Office of Naval Research, Department of the Navy, 1953.
- FOSDIC—A Film Optical Sensing Device for Input to Computers.* Washington: National Bureau of Standards Technical News Bulletin, Feb. 1954.
- Proceedings of the Eastern Joint Computer Conference Washington, December 8-10, 1953.* New York: The Institute of Radio Engineers, Inc., 1 East 79 Street, New York 21, N. Y., 1954.

Received January 21, 1955.

COMPARATIVE PSYCHOLOGY IN WILDLIFE CONSERVATION

ORVILLE A. SMITH, JR., AND AELRED D. GEIS¹

Michigan State University

A FEW years ago Beach (2) deplored the decreasing interest in comparative psychology and the focusing on the white rat as the proper object of the study of behavior. Although the reasons for this decrease are undoubtedly numerous, there remains the very real possibility that one of them may have been the lack of immediate applicability of the data gained from pure comparative research. Although the applicability of the data is of very little consequence to the theorist, the fact remains that extensive research demands funds which usually must be obtained from sources other than the limited budgets of universities, i.e., an applied field.

Shortly after Beach's article, the Brelands (4) reported their very interesting work on training various animals for entertainment purposes. Their work represents an excellent application of learning principles and may lead to some basic research in comparative psychology; however, the demand for individuals trained in these techniques would probably be low.

If there were an applied area which had large requirements for personnel trained in comparative psychology, the chances are that basic research in animal work would be stimulated.

In actuality there is an area well endowed with research funds and rather heavily plagued with problems which the comparative psychologist could aid in solving. The area is the field of Game and Fisheries Management as conducted by various state agencies and the Federal Government. In this field the work of Bingham, Adelman, and Maatsch in training hatchery-raised trout to survive when planted in open streams has attracted national attention (5, 13, 15).

The conservation departments all over the country have long been aware of the inefficiency of their hatchery programs. In the first place they must raise trout until they are seven or eight inches long. This means large food costs—\$450,000 per

year in the state of Michigan alone (11). More immediately serious, however, is the almost total disappearance of these fish within a few days after planting. Apparently, they are either rapidly caught by fishermen or predators, or die as a result of their inability to adapt to a new environment.

One of the most obvious errors which the hatcheries were making concerned method of feeding while the trout were in the hatchery tanks. At approximately the same time each day the rations for a particular tank of fish were tossed on the surface of the water. The particular sequence of events; i.e., surface splash-food-approach response, easily fits the conditioned response paradigm. Furthermore, it was actually observed that any disturbance on the surface of the water led to swarms of fish approaching the area of disturbance. As long as these young trout were in the hatchery tanks, the approach response to surface splash was extremely adaptive; but when they were transferred to the open stream, the response became peculiarly maladaptive. There was little opportunity even for one-trial learning to manifest itself, because the splash of a fisherman's fly or of a predator, such as otter or blue heron, meant swift demise for the "salivating" trout.

The recognition of the problem as a behavioral one led to the formulation of a training program by Bingham, Adelman, and Maatsch. They proceeded to alter the feeding methods and used electric shock to produce avoidance conditioning to surface splash. The results of their experiments show definitely that the distribution of the catch of the trained trout approximates that of the native trout; whereas, the untrained hatchery fish are caught in great numbers during the first few days after planting. Also, there are trends which show that over long periods of time the fingerling trout which received training survive better than controls (3).

This introduction of psychological pursuits to

¹ Department of Zoology, Michigan State University.

the field of conservation could have several important consequences, among them:

- a. Stimulating basic research on organisms from various phylogenetic levels;
- b. Extending the domain of applied psychology;
- c. Increasing the benefits directly to the conservationist and from them to the public in general.

Below is given a summary of some of the more important problems with which the conservationist is involved and the possibilities for applying psychological data and research methods to their solution.

CONDITIONING GAME FARM BIRDS

Because of low survival and poor sporting quality, the use of artificially propagated birds to augment wild populations has lost favor. The reason for those difficulties may be largely due to the fact that the birds are not familiar with natural food or enemies, either in the form of wild predators or hunters. If while at the game farm the birds could be conditioned to avoid enemies and to seek natural foods, the survival of game farm birds when placed in the wild would probably be increased. Also, they would be of better sporting quality.

OBTAINING A BETTER UNDERSTANDING OF STIMULI WHICH ELICIT SPECIES' SPECIFIC BEHAVIOR

The species' specific ("instinctive") behavior of animals has an important bearing on most wildlife management activities. It would be very desirable if the stimuli that cause or alter this behavior could be more precisely identified. If wildlife biologists had a better understanding of sensory capacities, releasers (12), etc. with which comparative psychologists are acquainted, they might be able to cope with problems like those listed below.

Effect on Census Methods

The determination of population levels is an essential activity in wildlife management. It is necessary to know population levels in order to set hunting seasons, evaluate management methods, and conduct research. Some of the ways of obtaining population data will be explained along with the animal behavior problems that complicate their use.

Counts of calling male birds. During the breeding season the males of many species of game birds issue calls which permit their censusing. The censuses are conducted along census routes on which listening stations are located. Estimates of number of pheasants, bobwhite quail, doves, ruffed grouse, Wilson's snipe, and woodcock are obtained in this manner. The average number of birds or calls heard per station is used as an index of abundance. The assumption is made that the population density is the only factor that influences the counts. It is very likely that investigations into the stimuli eliciting or influencing this behavior will indicate that this assumption is not valid. For example, with respect to the pheasant, which is the species to which this method is most often applied, there is evidence to indicate that the sex ratio and/or population density may influence the frequency of crowing. A better understanding of the factors affecting the frequency of male game birds calls would add greatly to the precision of this census method. Also, because of the large diurnal variation in the frequency of pheasant crowing, it is usually impossible to use crow counts made at different times to compare populations in one area with those in another. If the cause for this daily variation in crowing frequency were understood, it might be possible to make such comparisons. Another example can be given dealing with the woodcock. These interesting, long-billed birds are censused during a brief period in the evening at twilight when they are engaged in courtship performances. It is now necessary to locate the census routes where a woodcock is known to be found on the first stop. The census is started when the bird is observed to start his courtship performance. If the stimuli eliciting this behavior were understood, this requirement would not be necessary; and census routes could be laid out in a more random manner, which would yield more representative data.

Roadside counts. Counts taken from autos are also used to estimate wildlife numbers. The number seen per unit of distance is assumed to be proportional to the population present in the area and therefore is an accurate index of abundance. Fisher, Hiatt, and Bergeson (6) found that there were more pheasants on the roadside after a dewfall and on rainy or snowy days. Further investigations into factors affecting animal behavior which in-

fluence their visibility would, no doubt, yield more information about the factors affecting the accuracy and interpretation of this census method.

Hunter success data. Along with the accumulative kill as the hunting season progresses, hunter success data can also be used to estimate game populations. It is based on the assumption that the kill per unit effort is directly proportional to the population present. This assumption, however, is probably rarely met. For example, Shick (10) observed that early in the hunting season a disproportionate number of juvenile pheasants are shot. It seems probable that the early season hunting success is greater and late season poorer than it would be if it depended solely on population density. Not only do differences in behavior displayed by differences in population elements complicate this census method, but also it is possible that the population becomes conditioned to avoid hunters as the hunting season progresses.

Trapping data. Trapping data are often used to estimate wildlife abundance. The assumption is made that a uniform probability of capture exists, i.e., every animal in the population is equally likely to be captured. Young, Neese, and Emlen (14) working with house mice, and Geis (7) working with cottontail rabbits, established that a non-uniform probability of capture existed. This caused very inaccurate population estimates. The reasons for this variability in animal behavior should be determined so that corrections can be made for the error caused by this heterogeneous trap response.

Applications in Setting Hunting Seasons

Probably the oldest and most important tool in wildlife management is the regulation of the hunting kill. The objectives of hunting regulations are to allow the greatest possible amount of recreation and meat harvest without permitting a severe enough kill to harm the breeding population that will produce the next year's population. By considering cyclical changes in animal behavior during the day or year, seasons might be set to meet these requirements more adequately. Barber (1) attempted to obtain the necessary information to do this for doves by conducting an intensive investigation into nesting behavior. He hoped to determine the period during the day when doves could be hunted without endangering nesting females. Current waterfowl hunting regulations which

set the opening and closing shooting hours take into consideration behavior which makes ducks and geese more vulnerable at dawn and dusk.

ALTERING THE BEHAVIOR OF WILD POPULATION

It seems incredible that something as elusive and difficult to control as a wild population could be conditioned. It is therefore appropriate to point out examples where this has already been observed to occur. As the hunting season progresses, pheasant behavior has been observed to change, making the birds more difficult to bag (10). Although there are probably many factors involved, this change in behavior is generally attributed to the birds becoming "educated." Another example of a wild population becoming conditioned was observed when it was found that experience with baited live traps apparently increases the probability that cottontail rabbits will re-enter the traps when later encountered (7). It was observed that the interval between the first and second capture is significantly longer than the period between later captures. Although it may be very difficult to alter the behavior of wild populations, there is a possibility that it can be done. To do this it seems likely that wildlife managers will need better training in psychology than they now possess. The following examples indicate two areas of possible investigation.

Stimulating Movement

Often it would be very desirable if a game population could be conditioned to move when exposed to a certain environmental situation. For example, deer sometimes starve when, if they would move a short distance, the food supply would be adequate. In some cases danger from disease or predators could be reduced if game concentrations would disperse. Where concentrations are causing crop damage, the desirability of stimulating movement is obvious.

Reducing Vulnerability to Hunting

If game populations could be conditioned in some way to reduce their vulnerability to shooting, hunting seasons could be lengthened and thus provide more recreation. Hunting regulations might be set so that the game species involved would become conditioned to avoid hunters without too great a kill being made during the learning period. Possibly, if wildlife biologists had training in animal

psychology, they might be able to make such a scheme work.

MISCELLANEOUS

Application in Predator Control

In some situations game populations can be benefited by predator control. A greater understanding of animal psychology might aid in two ways. First, success in killing predators might be increased by the discovery of ways to stimulate them to enter traps or take poisoned bait. Second, means might be found to make predator control measures selective only for the offending predators. Too often pets and beneficial wildlife fall victim to predator control programs. If a study of behavior would provide a means of preventing this, one of the greatest objections to predator control would be overcome.

Habitat Improvement

Habitat improvement is currently the most popular tool in wildlife management. It seeks to increase a game population by providing it with the requirement that is present in the least quantity and is consequently limiting the population. Unfortunately, however, the limiting factor is usually unknown, and conservationists resort to a shotgun approach. For example, it is now the practice to burn over large areas to improve them for sharp-tailed grouse. If the conditions could be precisely identified that make these areas no longer suitable for sharptailed grouse, such a drastic measure might not be necessary.

Reduction of Crop Damage

Sometimes game causes difficulty by damaging crops. This is usually combatted either by the use of scaring devices or by placing repellents on the crops. An understanding of animal psychology would probably aid in developing more efficient methods of scaring or repelling game from crops.

* * *

The mere presence of the problems and the suggested means of remedy, however, does not guarantee that anything will be done about them. In order for both the fields of psychology and conservation to benefit, concerted efforts must be made on the part of the psychologists to offer courses designed to train individuals for this work and on

the part of the conservationists to direct their students into these courses. The basic research in comparative psychology will emerge as a consequence.

Below is given a list of courses which could be offered in a department of psychology and profitably taken by researchers in the conservation field.

1. Comparative Psychology. This could be the usual course in comparative, with its emphasis on phylogenetic comparisons and its discussions of anthropomorphism, teleology, instinct, tropism, etc.

2. Applied Learning Theory. A general review of conditioning and related phenomena with very little emphasis on the various theoretical systems, this course could be directed toward the individuals interested in animal work.

3. Sensory Capacities. The various sensory modalities of most importance to various species could be emphasized, as well as Tinbergen's work on stimuli which act as releasers for various behavior patterns (12).

4. Design and Analysis of Psychological Research. The relevant variables in research in learning and perception, the methods of controlling the variables, and the current statistical tools utilized for testing results could be studied.

By opening new avenues of approach to the many problems in the wildlife field, more wildlife biologists would be needed by state and federal conservation agencies. Employment opportunities in the conservation field have tightened in recent years (9). Therefore, a means of opening new areas for employment would be welcome. A few administrators of wildlife conservation agencies have indicated a need for wildlife students to have training in psychology (8). At present, however, this need is generally unrecognized.

Probably the greatest benefit from the application of psychology in wildlife management would be to the nation's millions of hunters and fishermen. By employing men trained as suggested above, state and federal conservation departments might be better prepared to serve this large sporting public.

REFERENCES

1. BARBER, Y. M. An intensive dove nest watching study. *Final Report P. R. project 26R*. North Carolina Resources Commission, 1951, 1-36.
2. BEACH, F. A. The snark was a boojum. *Amer. Psychologist*, 1950, 5, 115-120.
3. BINGHAM, J. L., ADELMAN, H. M., & MAATSCH, J. L. Personal communication, 1954.

4. BRELAND, K., & BRELAND, MARIAN. A field of applied animal psychology. *Amer. Psychologist*, 1951, **6**, 202-204.
5. CROWE, J. A. Getting them off the hook. AP Dispatch. In *Reader's Digest*, April, 1954, **64**, 121.
6. FISHER, H. I., HIATT, R. W., & BERGESON, W. The validity of roadside census as applied to pheasants. *J. wildlife Mgmt*, 1947, **11**, 205-226.
7. GEIS, A. D., Cottontail rabbit trap response and its effect upon censusing. *J. wildlife Mgmt*, in press.
8. Report of the committee on professional standards. The Wildlife Society. *J. wildlife Mgmt*, 1952, **16**, 370-378.
9. Report of the employment committee. The Wildlife Society. *J. wildlife Mgmt*, 1953, **17**, 355-360.
10. SHICK, C. A study of pheasants on the 9,000 acre prairie farm in Saginaw County, Michigan. Game Division, Michigan Department of Conservation, 1952.
11. TACK, P. I. Personal communication, 1954.
12. TINBERGEN, N. *The study of instinct*. London: Oxford Univer. Press, 1951.
13. TITUS, H. Conservation. *Field & Stream*, August, 1954, **59**, 24.
14. YOUNG, H., NEESE, J., & EMLLEN, J. T. Heterogeneity of trap response in a population of house mice. *J. wildlife Mgmt*, 1952, **16**, 169-180.
15. He teaches tricks to trout. *Amer. Magazine*, 1954, **158**, 52.

Received August 18, 1954. Revision received April 21, 1955.

THE TEACHING OF PSYCHOLOGY IN HIGH SCHOOL ¹

T. L. ENGLE

Indiana University, Fort Wayne Center

AND M. E. BUNCH

Washington University

THE Education and Training Board has a Special Committee on the Teaching of Psychology in High School. This committee conceives of its assignment as a charge (a) to study the present status of the teaching of psychology in the high school, (b) to examine critically the extent to which current practices and policies concerning the teaching of psychology in the secondary school are in accord with the present knowledge of the science, (c) to identify the main issues, if any, with which the APA might wish to concern itself and (d) to make appropriate recommendations to the E & T Board in the interest of the science and profession of psychology and the education of high school students as regards psychology.

In studying the present status of the teaching of psychology in high schools, the committee has reviewed all available literature on the subject. The present article reports a brief summary of this literature. At the present time, some members of the committee are visiting a sampling of high school classes in psychology, conferring with the teachers, and discussing policies and attitudes toward the teaching of psychology with high school principals and other school officials.

Extent to which high schools offer instruction in psychology. The teaching of psychology in secondary schools is not a recent innovation for there is evidence that many academies, collegiate institutes, normal schools, and other secondary schools in the United States offered psychology prior to the twentieth century (48).

Psychology is taught as a separate subject of instruction in some high schools in at least forty states, probably in all of them (16, 18, 22, 62). It is difficult to secure information on high school psychology from the offices of state officials of pub-

lic instruction. There have been instances in which investigators have written to the offices of state officials within the same academic year, one receiving a reply indicating that psychology was taught in the high schools of the state, another receiving a reply from the same office indicating that psychology was not taught in the state.

According to the 1948-50 *Biennial Survey of Education* (46), roughly fewer than 10 per cent of the high schools offer a course under the title "psychology," and the enrollments in psychology courses is about 1 per cent of the high school population. According to this report, in all probability an additional 2 per cent of high school students are enrolled in courses which involve subject matter largely psychological in nature although not labeled "psychology." A comparison of the 1933-34 report of the United States Office of Education with the 1948-50 *Survey* indicates that the percentage of enrollments in psychology courses has more than doubled since 1933-34. Variation between the states is marked; several states have psychology courses offered in from 20 to 25 per cent of their high schools and with from 2 to 5 per cent of their high school population in such courses, some states may have only one or two high schools offering psychology and with no more than 1 per cent of their high school students in such courses (16, 46).

It is principally in the larger schools that psychology is offered as a separate course of instruction (16, 18, 62), and the preference for its location is in the senior year, although the course may be open to juniors (16, 18, 19, 22). In all states in which it is taught, psychology is offered as an elective not required to meet state requirements for high school graduation. However, there is evidence that psychology is a required course in about 18 per cent of the high schools offering it (16). In approximately two-thirds of the high schools offering psychology, it is offered as a one-semester course,

¹ This article is an abstract of a report prepared by the authors as part of the work of a task committee for the E & T Board. The committee consists of M. E. Bunch (Chairman), T. L. Engle, K. Helfant, A. T. Jersild, C. C. Josey, V. H. Noll, R. H. Ojemann, and H. Sorenson.

most of the other third of the schools offering it as a two-semester course (16, 18, 19, 22). Credit for a course in psychology is usually granted in the field of social studies, although in some states and in some schools credit may be granted as a science (16, 18).

Surveys (22, 46, 62) indicate that courses which are evidently primarily psychological in content are offered under such titles as the following: senior problems, personal problems, youth faces its problems, social living, human relations, social problems, social adjustment, family living, mental hygiene, personal adjustment. In addition, psychological material is presented in connection with other courses such as: home economics, sociology, civics, health and physical education, biology, commercial, vocational, general science. Orientation and guidance programs seem to account for a very considerable amount of instruction which is psychological in nature (16, 18).

Purposes for which instruction in psychology is offered. Many objectives have been mentioned, but the principal purposes for offering instruction in psychology seem to be: to help the students understand themselves and their personal problems; to develop understanding of social problems and increase ability to live harmoniously with others; to provide instruction in elementary principles of psychology. Such objectives as these have been reported when teachers have been asked to indicate their objectives for their course in psychology (22), when the literature has been reviewed (29), and when a work conference of teachers has formulated objectives for the course (31). An analysis of space devoted to various topics in the leading high school textbooks, and the objectives stated in the prefaces of these books, has revealed similar objectives (15). In two surveys (2, 22), teachers were sent check lists on which they were to indicate the topics most frequently taught. Topics checked tended to bear out the objectives already mentioned.

Educational preparation and experience of teachers. In terms of college preparation, high school teachers of psychology are reasonably well trained. Four studies (2, 20, 22, 62) have reported that from about 60 to 75 per cent of them have a master's degree or better, and over 99 per cent of teachers have a bachelor's degree or better. A few hold the doctor's degree.

High school teachers of psychology seem to be trained primarily in social studies and education

with, however, under-graduate and some graduate training in the various areas such as mathematics, biological sciences, and physical sciences. In one study (18, 20), it is reported that the mean number of hours of training in (a) social studies are undergraduate, 23.34, and graduate, 3.80, (b) education (other than educational psychology) undergraduate, 15.58, and graduate, 9.06.

Several studies (2, 18, 20, 22, 62) have been made of the amount of course work training in psychology had by high school teachers of the subject. In comparison with training for other areas of high school teaching, it would seem that more than two-thirds of the teachers of psychology have had a significant amount of undergraduate course work in psychology, and more than half have had some graduate training in psychology. Apparently, the mean number of semester hours of training in psychology is between 15 and 25, probably nearer 15 than 25. The situation has improved since 1937, when an APA committee observed that "it seems likely that prevailing practice is to have psychology taught incidentally, by persons who do not know psychology" (59, p. 669).

Part of the psychological training is in courses in educational psychology required for a teaching license. If one considers only training in psychology (not including educational psychology), there is the disturbing fact that teachers report (18, 20) a mean total of undergraduate and graduate training in psychology of only 8.26 hours.

With regard to psychology as a primary interest, apparently very few teachers devote full time to the teaching of psychology (2, 18, 20). About half teach in one other area (social studies, science, and mathematics were most often mentioned), about a third teach in two other areas, and a few teach in four or five additional areas. More than half of the teachers engage in other psychological work besides teaching, such as counseling or testing. Approximately one-third of the men teachers of psychology are also serving as principals or superintendents.

According to two studies (2, 20), although some young teachers give courses in psychology, there is a tendency for such courses to be taught by the more experienced teachers, especially in the case of women. In the more recent of the two surveys, it was found that 71 per cent of the teachers had had more than five years of teaching experience and

31.5 per cent had had more than twenty years teaching experience.

Licensing or certification requirements. Approximately one-third of the states in which psychology is taught in high schools have a requirement of some course work for those who are to teach psychology. One fairly recent study (16, 18) reports psychology course requirements ranging from 12 to 24 semester hours, although in one state an administrative or social studies license is sufficient (no course work in a department of psychology required), and in another state the requirement is a social studies major (including an indefinite number of courses in psychology). Another fairly recent study (62) reports a mean of 14.0 semester hours in psychology required for a license to teach the subject, but adds that when state officials were asked to suggest a desirable number of hours of training for a license requirement, the mean was 17.7.

Textbook and other teaching materials. Until after 1940, one of the most frequently cited difficulties in the way of teaching psychology in high school was the lack of adequate textbooks (2, 29, 59). Since that time the textbook situation has improved markedly. In addition to books which are specifically labeled or regarded as dealing primarily with psychology for high school students, there are a large number of textbooks, workbooks, readers, and pamphlets containing psychological subject matter. In a 1951 survey (22) based on replies from 448 teachers in 34 states, seventy "textbooks" were reported as being in use; but some of those listed were obviously pamphlets rather than textbooks in the usual meaning of the word.

In recent surveys (18, 22, 62), nine textbooks have been indicated as being in most common use: Averill (1) Crow and Crow (8), Duvall (10), Engle (14), Geisel (26), Landis and Landis (35), Ruch, Mackenzie and McClean (50), Sorenson and Malm (56), Woodworth and Sheehan (63). Other books mentioned were those by Bliss, (5), Josey (33), Langer (36), Roberts (49) and Tiffin, Knight, and Josey (60).

In addition to textbooks, there is evidence (2) that practically all teachers use supplementary reading materials. Several studies (22, 31, 62) note that a considerable variety of such materials as the following are used: (a) pamphlets (for example: National Association for Mental Health, Science Research, Vocational Forum Series), (b)

newspaper and magazine articles, (c) films, (d) psychological tests, (e) models from health and biology departments, (f) articles in psychological journals. Numerous audio-visual aids are reported (22) as being used in instruction, such as the following: (a) film strips and slides, (b) moving pictures (how to study, how to improve reading, human behavior), (c) wire and tape recorders, (d) bulletin boards (arranged by student committees), (e) charts, (f) scrap books of clippings, (g) radio. Provided the materials are selected with caution, the use of audio-visual aids has been enthusiastically endorsed by a conference of high school teachers of psychology (31).

Methods of presentation. Two studies (2, 22) have indicated that a variety of general methods are used in teaching psychology at the high school level, for example, recitation from a textbook, term reports and themes, lecturing, outlining of chapters in the textbook, use of workbook, talks by outside speakers. It is of interest to note that some teachers speak of term reports and themes as "research," although they may be on such topics as "My earliest memory," or "If only I had known." Outside speakers include such persons as parents, clergymen, social workers, YMCA and YWCA officials, psychologists, and business men. Sometimes psychologists give demonstrations of psychometric testing, for example, the Binet. Apparently the lecture method is used infrequently, but when used is considered as preparation for college work.

In addition, such methods as the following have been mentioned: roundtable discussion, panels, class discussions, symposiums, forums, debates. Such methods may be used with student leaders.

One survey (22) reported a variety of special methods actually in use: the course itself is built on topics suggested by students; role playing, reading of selected plays, writing plays and dialogues to illustrate textbook principles; use of rating charts with self and others; psychological autobiographies; case studies.

A workshop conference on high school psychology (31) has gone on record as favoring various methods of teaching which would tend to encourage good teacher-student relations, and procedures which would provide students with increased opportunities for expressing themselves, such as: role playing, sociodrama, the participant-observer technique.

No instance has been reported of a formal laboratory as part of a course requirement in high school

psychology. However, in one survey (22) it was found that student participation in laboratory and extra-class activities included the following: (a) construct apparatus used in class demonstrations and experiments; (b) perform experiments such as code learning, conditioned response, stereoscopic pictures, color mixing, testing for color-blindness; (c) conduct surveys of high school student body; (d) assist in scoring standardized tests administered in elementary schools and discussing the data.

The participants in the workshop conference (31) believed that laboratory experiments may be very instructive in connection with the teaching of certain psychological principles, and the more involved students are in the experiments, the more effective they tend to be. Also, the members of the conference spoke with favor of field trips to mental hospitals or similar institutions, provided that students are prepared in advance for such trips and that the trips are integrated with the rest of the course.

It is of interest to note that in 1937 an APA committee (59) observed that a laboratory manual of simple experiments, which would require little, if any, equipment, would be beneficial. At the present time, there is only one workbook (17) written for high school students which includes experiments such as were suggested by the APA committee.

In general, we need to know much more about methods of teaching psychology to high school students. At the present time Division 2 has a committee studying this problem.

Attitudes toward the teaching of psychology in high schools. A questionnaire sent to high school principals and state directors of secondary education in 1932 revealed (6) that approximately 50 per cent of both groups favored the teaching of psychology in high schools. Another questionnaire was submitted to school superintendents in 1940. It was reported (2) that of 95 superintendents whose systems did not offer psychology, 13.7 per cent expressed the opinion that there was a need or demand for a high school psychology course while 20.0 per cent indicated that they were doubtful or that there was a need but not a demand. That school officials are now (1950-51) more favorable to psychology in the high school curriculum is suggested by a study in one state (62) in which 82.7 per cent of the 729 high school principals expressed the opinion that psychology courses have a place in

the secondary curriculum and only 12.3 per cent responded in the negative. This study reported that from parochial schools there was unanimous agreement that psychology as such has no place in the secondary curriculum, but rather should be incorporated as a part of religious training.

Several studies have sought expressions of opinions as to why psychology was not taught as a separate subject. Reasons such as the following were noted (16, 18, 22, 29, 34, 62): the teachers already have a full load and the curriculum is crowded; teachers with adequate preparation in psychology and otherwise qualified are frequently not available; psychology is too advanced for high school students; psychology is not required for college entrance; might tend to make students morbidly introspective; inertia and lack of interest on the part of administrative officials; psychology is taught with too much emphasis on theory and not enough on practical application.

Teachers of psychology hold favorable attitudes toward their subject. In one survey (18, 19) involving 147 replies from teachers in twenty-four states, approximately two-thirds of the teachers expressed the opinion that psychology should be a two-semester course and only one-fourth thought it should be limited to a one-semester course. The remainder thought it should be a three- or four-semester course.

That high school students themselves favor a course in psychology is indicated by the fact reported in one survey (18, 19) that 87.1 per cent of 2,783 students in psychology classes thought the course should be two or more semesters in length. In another study (12), high school students rated psychology higher than any other subject field when rated in terms of seven objectives of secondary education as proposed by the Commission on the Reorganization of Secondary Education (U. S. Office of Education Bulletin, 1918, No. 35).

In 1948 Guest (27) reported that of 311 adults interviewed, 65.3 per cent agreed with the statement, "Psychology should be taught in every high school," and only 20.3 per cent disagreed with the statement.

Summary. Although relatively few of the total number of high schools in the United States offer a course in psychology, the popularity as a field of instruction for the high school level is increasing. Psychology as a course for high school instruction is to be found in at least forty states and probably

is taught in all states. In most high schools, it is offered as a one-semester elective in the senior year. Not only are courses offered under the title "psychology," but a considerable variety of other courses contain psychological material. Psychology is taught, not only to provide instruction in elementary principles of psychology, but for the purpose of helping students understand some of their personal problems and social problems. At the high school level, psychology is not taught as a laboratory science. Teachers of high school psychology are reasonably well educated in terms of college degrees and, in comparison with preparation of teachers for other areas of instruction, are fairly well trained in psychology, especially educational psychology. The majority of states do not have specific requirements for licensing of teachers of psychology. The textbook situation has improved in recent years, and now there are available a number of books on psychology written for the high school level. Educators, high school students, and the adult public, are favorable to the teaching of psychology in high school.

REFERENCES

1. AVERILL, L. A. *Introductory psychology*. New York: Macmillan, 1943.
2. BERG, L., & BROWN W. Psychology in Western high schools. *Psychol. Bull.*, 1942, 39, 240-244.
3. BILLIG, A. L. Psychology in the high school. *J. Educ.*, 1943, 126, 261-262.
4. BJORK, R. Psychology in the high schools of Montana. *Montana Educ.*, 1937, 13, 10-11.
5. BLISS, A. L. *Personality and school*. New York: Allyn & Bacon, 1938.
6. BROXSON, J. A. The determination of a course in psychology for the high school. Unpublished doctor's dissertation, Univer. of Cincinnati, 1932.
7. BURGUM, L. S. The value of high school psychology. *Sch. & Soc.*, 1940, 52, 45-48.
8. CROW, ALICE, & CROW, L. D. *Learning to live with others*. Boston: Heath, 1944.
9. DENT, E. L. A survey of high school psychology in Ohio. Unpublished master's thesis, Univer. of Akron, 1938.
10. DUVAL, EDITH R. *Family living*. New York: Macmillan, 1950.
11. ENGLE, T. L. Psychology—for Michigan City seniors. *Clearing House*, 1939, 14, 49-51.
12. ENGLE, T. L. Psychology: Pupils in six high schools compare the value of the subject with that of six other fields. *Clearing House*, 1947, 21, 469-473.
13. ENGLE, T. L. Pupils' pseudo-psychological beliefs. *Clearing House*, 1947, 22, 73-77.
14. ENGLE, T. L. *Psychology: its principles and applications*. (Rev. Ed.) Yonkers, N. Y.: World Book, 1950.
15. ENGLE, T. L. An analysis of high school textbooks in psychology. *Sch. Rev.*, 1950, 58, 343-347.
16. ENGLE, T. L. A national survey of the teaching of psychology in high schools. *Sch. Rev.*, 1951, 59, 467-471.
17. ENGLE, T. L. *Workbook in psychology*. Yonkers, N. Y.: World Book, 1951.
18. ENGLE, T. L. Teaching of psychology in high schools. *Amer. Psychologist*, 1952, 7, 31-35.
19. ENGLE, T. L. Attitudes of teachers and pupils toward a high school course in psychology. *Bull. Nat. Ass. Sec. Sch. Principals*, 1952, 36, 145-151.
20. ENGLE, T. L. The training and experience of high school teachers of psychology. *Educ. Adm. Superv.*, 1952, 38, 91-96.
21. FRANDSEN, A. N. Psychology in the high school curriculum. *Sch. Rev.*, 1941, 49, 515-536.
22. GARBER, ETHEL, & ENGLE, T. L. A national survey concerning the teaching of psychology in high schools. (Unpublished.)
23. GEISEL, J. B. Mental hygiene in the high school. *Phi Delta Kappan*, 1938, 20, 186-187; 193-194.
24. GEISEL, J. B. Alumni opinions concerning a high school course in mental hygiene. *Ment. Hyg.*, 1940, 26, 419-433.
25. GEISEL, J. B. Mental hygiene in the high school curriculum. *Bull. Nat. Ass. Sec. Sch. Principals*, 1943, 27, 82-88.
26. GEISEL, J. B. *Personal problems*. Boston: Houghton Mifflin, 1949.
27. GUEST, L. The public's attitudes toward psychologists. *Amer. Psychologist*, 1948, 3, 135-139.
28. HARRIS, R. S. Psychology in the high school. *Sch. & Community*, 1939, 25, 62-63.
29. HELFANT, K. The teaching of psychology in high schools: A review of the literature. *Sch. Rev.*, 1952, 60, 467-473.
30. HITES, C. T. Marriage course as a psychology department offering. *Sch. & Soc.*, 1939, 50, 119-120.
31. JERSILD, A. T., & HELFANT, K. *Education for self-understanding: The role of psychology in the high school program*. New York: Teachers Coll., Columbia Univer., 1953.
32. JESSEN, C. A., & HERLIHY, L. B. *Offerings and registrations in high school subjects*, 1933-34. U. S. Off. Educ. Bull., 1938, No. 6.
33. JOSEY, C. C. *Psychology and successful living*. New York: Scribner's, 1948.
34. JOSEY, C. C. A questionnaire survey of high school psychology, 1953, Butler Univer., Indianapolis, Indiana. (Unpublished.)
35. LANDIS, J. T. & LANDIS, MARY G. *Personal adjustment, marriage, and family living*. New York: Prentice-Hall, 1950.
36. LANGER, W. C. *Psychology and human living*. For the Commission on Human Relations, Progressive Education Association. New York: D. Appleton-Century, 1943.

37. LIDDY, R. B. Psychology for secondary schools. *School*, 1945, 33, 476-481.
38. LIDDY, R. B. Can psychology be helpfully taught at the high school level? *Bull. Canad. Psychol. Ass.*, 1946, 6, 9-12.
39. MACKAY, FRANCES G. A study to determine the value of a one-semester course in social science in which the aim was personality and character development. Unpublished master's thesis, Univer. of Michigan, 1939.
40. MIKESSELL, W. H. Psychology in Kansas high schools. *J. appl. Psychol.*, 1943, 27, 75-82.
41. MOORE, H. K. Advent of psychology as a unit in junior high school science. *Sci. Educ.*, 1932, 16, 199-200.
42. MYERS, G. C. A high school course in mental hygiene. *High School Teacher*, 1933, 9, 87-99.
43. PECHSTEIN, L. A., & BROXSON, J. A. The determination of a course in psychology for the high school. *Sch. Rev.*, 1933, 41, 356-361.
44. PITKIN, R. S. Psychology for high school students? *Progressive Educ.*, 1933, 12, 251-253.
45. RANSOM, J. E. Psychology and the school. *Phi Delta Kappan*, 1945, 27, 18-20.
46. RICE, M. C., STORY, R. C., & HULL, J. D. Offerings and enrollments in high school subjects. *Biennial Survey of Education in the United States*; 1948-50, Ch. 5. Washington: Government Printing Office, 1951.
47. RIDDLE, E. M. Psychology by request. *High School J.*, 1939, 22, 275-277.
48. ROBACK, A. A. Psychology in American secondary schools in the '90's. *Amer. Psychologist*, 1952, 7, 44-45.
49. ROBERTS, W. H. *Psychology you can use*. New York: Harcourt, Brace, 1943.
50. RUCH, F. L., MACKENZIE, GORDON N., & MCCLEAN, MARGARET. *People are important*. Chicago: Scott, Foresman, 1941.
51. SHANNON, J. R. High school's the place for a psychology course. *Clearing House*, 1943, 17, 296-297.
52. SHEEHAN, M. R. Psychology for high schools. *Sec. Educ.*, 1944, 11, 13.
53. SKAGGS, E. B. Psychological studies in the grades and high school. *Sch. & Soc.*, 1937, 46, 598-599.
54. SMITH, M. The study of a course in mental hygiene for high school pupils. Unpublished master's thesis, Univer. of Michigan, 1936.
55. SMITH, V. C. Psychology for high school students. *Sec. Educ.*, 1946, 13, 1-4.
56. SORENSON, H., & MALM, MARGUERITE. *Psychology for living*. New York: McGraw-Hill, 1948.
57. STODDARD, S. E. Psychology in secondary schools. *Sch. Sci. Math.*, 1941, 41, 468-471.
58. STONE, C. P., & WATSON, G. Report of the Committee to Study Problems Connected with the Teaching of Psychology in High Schools and Junior Colleges. *Psychol. Bull.*, 1936, 33, 709-714.
59. STONE, C. P., & WATSON, G. Committee to Study Problems Connected with the Teaching of Psychology. Report A. Survey on the teaching of psychology in secondary schools and junior colleges. *Psychol. Bull.*, 1937, 34, 660-674.
60. TIFFIN, J., KNIGHT, F. B., & JOSEY, C. C. *The psychology of normal people*. Boston: Heath, 1940.
61. TURNEY, A. H., & COLLINS, F. I. Experiment in improving the personality of high school seniors. *J. educ. Psychol.*, 1940, 31, 550-553.
62. WIGGS, HALICE. The status of psychology in Indiana secondary schools. Unpublished Ed.D. thesis, Indiana University, 1952. (Abstracted in Thesis Abstract Series, Stud. Educ., Indiana Univer., 1952, pp. 321-325.)
63. WOODWORTH, R. S., & SHEEHAN, MARY R. *First course in psychology*, New York: Holt, 1944.

Received March 3, 1955.

ELEMENTARY PSYCHOLOGY FOR EIGHTH GRADERS?

JOSEPH B. PATTI

Amherst Central High School, Snyder, New York

THE idea of a course in elementary psychology for junior high school students had loomed in my mind as a possibility for a number of years, but whenever I proposed it the proposition was greeted with benign expressions of reluctant approval—the kind of acquiescence one gives an inmate of a state hospital when he insists he has discovered the secret of life. Such reactions were not encouraging. Last year, though, my real opportunity came.

I was the recipient of a fellowship granted by the Ford Foundation's Fund for the Advancement of Education and I was accepted at Yale University where I did research and study in the departments of sociology, psychology, and psychiatry under the direction of A. B. Hollingshead of "Elmtown's Youth" fame. It was during this academic year that I became fully convinced that I should organize and offer a course in elementary psychology for eighth graders. More than that, I felt I owed it to myself and to eighth graders to do it.

I put the proposition in a letter to my administrator at Amherst Central High School. He approved the plan, and he offered the course as an elective to begin in the fall term, 1954. When the enrollment reached 25, I asked that the course be closed because my intention was to include maximum informal discussion, and I do not feel myself master enough to deal with larger groups on that basis. Nevertheless, I agreed to 28, the present size of the class.

In order to answer the question uppermost in most minds, "Why do you think such a course would be valuable?" I formulated my primary objective, as follows: To bring about, by research, analysis, and discussion, a clearer understanding of self, of one's behavior in the society of which one is a part, and to effect whatever desirable changes in behavior might appear necessary.

At our first meeting, I asked the students to write an answer to the question: What does "psychology" mean to you? Here are representative answers:

Why people do the things they do.
What makes us do certain things.

It's about what's going on in people's minds. It also helps you understand people better.

It concerns human emotions and feelings, what makes us argue and be bad.

I think it's the study of people, what they do, how they think and how their brain reacts when they see things.

You learn why people act and do what they do, when they are sleepy, upset, etc.

It is something to do with the mind.

It is the study of the human body.

It is about the way different things affect people, also how to handle different situations.

... how we should act toward other people and try to understand them and to help them, if they need help.

... what makes a person have the kind of emotions he does have and why people think what they do think. It has a lot to do with the mind.

It explains why children cry, laugh, and do things that they know are wrong.

... means to have an understanding of things and how you can keep from having to get mad, to say something and know what you are saying.

This was followed by a second question: "What do you expect to accomplish in this course?" Following are answers to that question:

... to try to find out about myself and why I do the things I do, also why other people are different from each other.

... to find out why some people are nice and why some are hotheads, why some are musically inclined and some can't even read music.

I want to learn how to get along with people.

I think I may be able to overcome some of my problems by knowing more about them, such as, when I get up in front of a group I get very nervous.

When I get out of school, I would like to work with children, and this course may help me understand them.

... because I want to be a nurse, and my mother and I thought it would help.

I thought it would be interesting and fun to know.

It might help me in some of the other subjects I have to take.

I think it will help me in later life.

I hope to find out what makes people have the emotions they have, such as being angry, doing things they know they shouldn't do, etc.

... to find out why people behave in a certain way, why there are personality clashes, and restlessness in class.

... why do we have to do the dishes, and why can't we do things when we are ready.

... to help me in my work and pleasure when I get older, and at the present time.

... to see if I can make more friends and to get along with the friends I already have.

I want to become a psychologist.

I want to be a teacher and I think it will help me in college.

The group and the teacher mapped out a plan of procedure, listing topics which might be studied and possible methods of studying them. Briefly, we used (a) discussion, (b) research followed by oral reports and discussion, (c) lecture and discussion, and (d) interview followed by lecture, discussion and analysis. The major topics studied were: heredity and environment (a panel discussion on these), personality types (introvert, extravert, and a combination of both), fears, dreams, and their possible significance, frustrations and how to deal with them, psychological blocks and their possible causes and cures, superstitions, their origins and meanings, the psychology of advertising (TV, radio, newspapers, billboards, etc.), extrasensory perception (the Duke University experiments), premonitions and intuition, telepathy, pseudosciences and public gullibility, sibling relations, parent-child relations, boy-girl relations, and family problems and how to solve them. These were all touched upon, some more in detail than others, none exhaustively, needless to say.

During the last two weeks of the first term we planned the second term's work and, at the group's request, we decided to pursue some of the above-mentioned topics in greater detail. Those chosen by the majority for more extensive study were: personality types, superstitions, the psychology of advertising, and boy-girl relationships, in that order. The last-mentioned topic was an all-girl selection, in a secret ballot. The boys, after some snickers and groans, raised no objections, when the votes were counted.

After twenty weeks, the students were asked to write their reactions to the course, anonymously, just as the comments and impressions above were written. The question this time was: What are your reactions, at this point, to this course in psychology? Please give your impressions, good and bad, and make any suggestions you like about what you think we ought to do during the second semester.

I have omitted all those answers which merely expressed general enthusiasm and which suggested we continue as we had been doing. Here are some of the more specific comments: (only the spelling has been edited to avoid confusion).

I think this course has helped an awful lot in helping prevent arguments at home and with friends. I wish we could have the course in ninth grade, too.

It has taught me more about people's actions than I ever knew before. It helps me to interpret people's actions, also. I'd like to have the subject in ninth grade, also (on a higher level).

I think we have all learned a good deal that others, even our parents, never knew or thought of. It gives us a broader understanding of the people we associate with.

This class has been very helpful in my social life. I liked the informal way we had our classes, also.

It made me aware of silly superstitions and fears people have. The only thing I didn't especially like was all that note-taking.

It has helped me to do away with some of my superstitions. Sometimes psychology gets boring, but it is usually interesting. I have learned many new interesting words and their meanings.

I like the system of the class planning what to do because then at least half the kids like the unit and most of the time the whole class finds it interesting.

I learned how heredity and environment influence our lives. The whole course was interesting and informative.

I don't think you can tell how much you get out of this course right away, as you can with history or French. You have to use what you have done in this course in real life before you can tell what you have really learned from it.

Although it is not always interesting and sometimes taking notes gets tiresome, I think this is the class in which I have learned and used my learning the most. It should definitely be continued in the ninth grade.

I liked the psychology of advertising and how not to be swayed by exaggerated or false ads.

I liked this course because I learned many things of curiosity that I never knew before, different things that happened and I never knew why, but now I know why.

This course has helped me solve many problems.

I took the course because I wanted to learn more about personality. I have learned many other things which I didn't know came into psychology.

Since I have been in this class I have lost all belief in superstition.

I have a better sense of the word "psychology" and many psychological terms. I have learned about superstitions and have conquered them.

The negative reaction which appeared most frequently was the one on note-taking. In a subsequent discussion of the group's written reactions, we batted the note-taking around and I agreed we would not take so many notes excepting when new terms or new topics were introduced. This would be essential, I explained, so the group would have a ready reference for future use. At any rate, we will keep the activity to an important minimum during the second semester.

Our plans for the next few weeks include research and discussions on the psychology of family

relations. These discussions will be done with a moderator, a recorder, and an observer, the moderator to be used only when necessary, i.e., to prevent lulls, to spur discussion, to quell "riots." We have also planned that each member will select a student in the school, interview him or her, learn about his or her background, likes and dislikes, gripes, opinions on various topics of psychological interest, etc., and attempt to rate the personality as a desirable one, an admirable one, disagreeable, worthy of imitating, extravert or introvert, or some variation, and, finally, to decide what influences made this person the personality he or she is. Some group members have asked senior high students to cooperate. Preliminary returns reveal that the senior high students are willing to submit.

We have constructed a personality case study interview schedule—on a simplified scale, of course—containing pertinent questions for consideration. As a starter, I asked if there were any members of the group who would be willing to be my interviewee for a class demonstration interview. Since seventeen of the twenty-eight volunteered, I drew one name out of a container. I happened to draw an extreme introvert, and I conducted the demonstration. The group members will do their interviewing outside of class and will report their findings and analyses to the rest, using fictitious case names and locations, if desired.

Reactions to this experiment in psychology in the

community have been interesting, but not varied. Incredulity, coupled with approval, watered with skepticism would best describe them. At this point, I am treading on untilled soil and am in no position to draw conclusions. I can say, with impunity, that there has been no opposition from any quarter. There has been only enthusiastic acceptance by the parents of the students involved, and cooperation on all sides.

So far as I can learn, there is no one else teaching a course in psychology, as such, to eighth graders. I have checked the usual sources which an educator generally checks when he attempts to track down research, experiments, and surveys in education, but I have found nothing. I found many schools with part-time courses in human relations, such as the plan used by Colonel Bullis in Delaware, and which our school also uses. This course in elementary psychology is not an imitation of that plan nor of any other that I know. It makes no attempt to preach, nor to teach "lessons"; it tries to explain human behavior in so far as a study of psychology can explain it.

I should appreciate any communication from anyone in the country who has done or is doing what I have described above. My address is: Joseph B. Patti, Amherst Central High School, Snyder 21, New York.

Received November 10, 1955.

ON THE PRACTICE OF PSYCHOTHERAPY BY THE NONMEDICALLY TRAINED

WAYNE ANDERSON

University of Missouri

IN 1926 Freud wrote a small volume (3) presenting arguments for allowing persons without a medical degree to practice psychoanalysis. The occasion was the prosecution of Theodor Reik for illegally practicing medicine. Freud clearly indicated that medical training was not necessary for psychoanalytic qualification.

The problem is still very much with us; and it may be profitable to re-examine the arguments pro and con for allowing nonmedically trained individuals to perform psychotherapy.

Reik asserted that "The analyst is above all a psychologist, whatever else he may be, physician, teacher, jurist, pastor" (7, p. 241). Freud said, "... psychoanalysis is not a particular branch of medicine. I do not see how anyone can refuse to recognize this. Psychoanalysis is a part of psychology. It is certainly not the whole of psychology but its substructure, perhaps the foundation of the whole (4, p. 393). . . . It may develop that in connection with psychoanalysis, people in need of treatment are not sick people, in the broad meaning of this term, laymen not always to be considered laymen, nor physicians what physicians are generally supposed to be—the very premise upon which these physicians base their claims" (3, p. 29).

Is neurosis a sickness? Freud believed that people in need of psychoanalysis were sick in a way different from regular medical patients.

Some psychoanalysts disposed of this problem as if it did not exist; thus J. Sadger says, "I hold the view firmly and on principle that sick persons should be treated exclusively by physicians and that any analysis of such persons by any lay-analyst is to be avoided" (7, p. 274). A somewhat less dogmatic interpretation of the word *sick* is given by Wilhelm Reich who argued for the organic basis of neurosis and the necessity of a complete knowledge of medicine for the appreciation of this "fact."

What of a physical involvement in neurosis? Cases have been cited in which the patient would have died had not the therapist had the training

necessary to recognize the signs of organic disorder. This alertness to symptoms is given as one of the major contributions that medical training has to make to psychoanalytic practice. Oberndorf states, "In fifteen years of psychoanalysis I cannot recall a single case where in the evaluation of symptoms I have not been compelled to fall back upon the medical training and a knowledge of the functioning of the body in health and disease" (7, p. 204).

Another psychoanalyst who stressed the danger in nonmedical analysis was Ernst Simmel. "We have here in neurosis the psychical manifestation of a biological process that has a continuous reciprocal effect on the body. For that reason a training in the medical profession seems to me to be indispensable for everyone who undertakes the responsibility of healing the sick, and therefore also for analytic practitioners" (7, p. 266).

Transfer of training—positive. Another argument for limiting analysis to the medically trained hinges upon the general feeling among some analysts that psychoanalysis is a biological science and should be practiced only by persons with a background in biology. Ernest Jones illustrates the particular medical orientation in therapy by emphasizing such things as erotogenic zones, chemical basis of the libido, somatic influences on the libido, etc.

Jones's most cogent argument, however, is his feeling that a medical background desensitizes the individual and protects him from fleeing from the personal element of therapy.

Brill argues for medical training on the grounds of the necessity for the analyst to know the whole man, "physically and mentally."

Transfer of knowledge—negative. Aside from the fact that some neurosis may have a physical component, what is the need for a medical orientation to do psychoanalysis? None, said Freud, in fact it may even be harmful to the best interests of the patient. "In the first place, it must be taken into consideration that the training the medical student receives is almost the very opposite of that

which would be required of him as a preparation for psychoanalysis. His attention has simply been focused upon facts which may be objectively ascertained, such as present themselves in anatomy, physics, and chemistry, and which must be understood properly and applied correctly, to achieve results" (3, p. 142). He goes on to point out that the psychological aspects of life are avoided, in that even psychiatry is simply trying to discover the physical reasons for psychological disturbances, and there is a desire to treat them like any other physical ailment.

The protection of the transference. Two points are presented here. One is that the patient will not be able to make a full transference to the layman because he cannot put his complete trust in a person who cannot also handle the physical aspects of his illness. As a second point the medical analysts assume that the lay-analysts will feel inferior and therefore act inferior toward the patient because he cannot deal with the whole organism.

In answer to this approach Freud says, "However, although we have never kept a patient in the dark, as to the qualifications of an analyst, we have come to the conclusion that the patients have no prejudice against a non-medically trained analyst; they are only too glad to accept the benefits of treatment, wherever they offer themselves—a fact resented by the medical for the longest time" (3, p. 174). He added in a later writing "... the patients usually recognize authority according to the transference of affect and the possession of a medical diploma does not impress them nearly so much as physicians imagine" (4, p. 398).

Some suggestions. Several ways to resolve this problem have been offered. Robert Walder (7, p. 276) feels that members of other disciplines can acquire the needed medical knowledge for psychoanalysis just as medical men have to acquire psychological and sociological knowledge for the practice of psychoanalysis. Freud (3) believed that all persons who require psychoanalysis should have a complete check-up by a physician to see that there are no signs of organic pathology. Following this basic check-up a lay analyst can carry out the analysis quite adequately.

Other disciplines bring something to therapy. The critics of lay analysis do not deny that other fields can bring something to therapy. Even Ernest Jones who in general is very critical of lay analysts recognizes the value of the contributions they can

make. He says, "Contact with other fields of work is always an invigorating stimulus and brings a stream of fresh ideas with it. Advance in the science of psychoanalysis would be seriously impeded if all lay-workers were excluded" (7, p. 184).

Freud also acknowledged the contributions that other fields besides medicine can contribute to psychoanalysis. "Psychoanalytical training would have to include a number of subjects which have no connection with medicine, and never enter the physician's practice, such as History of Civilization, Mythology, Psychology of Religion, and Literature. Without being well acquainted with these subjects, the analyst will be unable to grasp the problems that will face him in the course of his practice" (3, p. 177).

Other disciplines need psychoanalysis as a research tool. Freud believed that psychoanalysis was a basic research tool in many fields. He surmised that a better understanding of human dynamics could contribute much to the comprehensiveness of religion, anthropology, psychology, education, mythology and literature.

In his paper on "Psychoanalysis and Delinquency" he states, "I will end with a further conclusion and this time one which is important not for the theory of education but for the status of those who are engaged in education. If one of these has learnt analysis by experiencing it on his own person and has reached the stage of being able to employ it on borderline and mixed cases to assist him in his work, he should obviously be given the right to practice analysis, and narrow-minded motives should not be allowed to put obstacles in his way" (2). His feeling as to the use of psychoanalysis in other fields approximates his view on its use in education.

The pressing need for more psychotherapists. In 1952 there were nearly 600,000 persons in mental hospitals, 170,000 in penal institutions, 140,000 in hospitals for mental defectives (6). It was further estimated that there are 3,000,000 children with emotional and behavior problems and 8,000,000 neurotics (1). In 1952 there were nearly 215,000 physicians in this country (6). The exact percentage of these who are psychologically oriented is unknown. In any case it is not enough to deal with the number of individuals who have personality problems.

That medical men have not realistically faced the need for aid from whatever qualified source

that might offer it is suggested in a discussion of psychotherapy printed in the *American Journal of Psychotherapy* (5). Gutheil, the editor of the journal states, "... psychoanalysis and psychotherapy should remain the domain of the physician." Ellis, another MD, simply states, "As for the lay-analysts, I believe we shouldn't have any of them."

Ability to do good psychotherapy is a function of personality factors. In commenting on the rigid standards for psychotherapists advocated by Gutheil, Collins a non-MD argues, "Psychotherapy is as much a function of personal qualities as of training—one without the other is insufficient. Psychologists and social workers obtain adequate training for the job and it seems that you might find a few among them with the necessary personal qualifications. I have seen far too many patients damaged by the deep-freeze personalities of some psychiatrists with unimpeachable paper-qualifica-

tions—and too many helped by psychologists and social workers, to be taken in by the invalid contention that only the MD can practice psychotherapy" (5).

REFERENCES

1. COLEMAN, J. C. *Abnormal psychology and modern life*. Chicago: Scott, Foresman, 1950.
2. FREUD, S. Psycho-analysis and delinquency. In *Collected papers*, Vol. V. London: Hogarth Press, 1950.
3. FREUD, S. *The problem of lay-analysis*. New York: Brentano's, 1927.
4. FREUD, S. Concluding remarks on the question of lay-analysis. *Int. J. Psycho-Anal.*, 1927, 8, 392-401.
5. GUTHEIL, E. A. Training in psychotherapy (symposium). *Amer. J. Psychother.*, 1948, 2, 676-689.
6. U. S. DEPARTMENT OF COMMERCE, BUREAU OF THE CENSUS. *Statistical Abstract of the United States 1954*. Washington, D. C.: U. S. Government Printing Office, 1954.
7. VARIES. Discussion on lay-analysis. *Int. J. Psycho-Anal.*, 1927, 8, 174-283.

Received March 30, 1955.

A PSYCHOLOGY COLLOQUIUM TO STIMULATE RESEARCH INTEREST

ROBERT M. GUION

Bowling Green State University

ON March 5, 1955, a one-day psychology colloquium was held on the campus of Bowling Green State University, sponsored by the local chapter of Psi Chi. In all, some sixteen institutions in Ohio and Michigan had some part in the proceedings. The meeting, modeled after MPA programs, was the result of student efforts dating back more than a year.

The project had three objectives. First, it gave participants experience in reading a research report and answering questions about it. This requires organization and a thorough knowledge of the study. The experience should help the student "sharpen his research wits."

Second, the program was designed to stimulate research interest. Most of the papers read were reports of undergraduate research. Each participant would be aware that, in carrying out an independent investigation, he had achieved a degree of psychological sophistication exceeding that of his audience. Reportable research might become a mark of prestige. Studies read at this meeting

might also suggest research ideas to those in the audience to carry out for next year's meeting. Interest in research might be stimulated among those who would not do any themselves. Some members of the audience would be students of education, business administration, and other disciplines in which they must learn to live with psychologists. These students could also come to appreciate research work so that they will ask for and be able to evaluate evidence which may be offered in support of psychological pronouncements.

Third, it attempted to build a favorable attitude toward undergraduate and beginning graduate research and its exchange.

We cannot tell now how well the program met the first two objectives. The participants *have* had an experience, but its value depends upon whether it helps them in presenting future research to professional groups. As far as stimulation of research interest is concerned, we must wait to observe the number and quality of papers which are submitted at later meetings. The third objective is slightly

more measurable, and an opinion questionnaire was circulated in an attempt to obtain some sort of expression of attitude.

THE PROGRAM

Upon payment of a fifty cent registration fee, registrants were provided with an artistic but mimeographed program and a nicely printed convention badge complete with the Psi Chi insignia and an acetate badge holder. Some members were fearful of the registration fee. However, it was necessary since the program was entirely put on by students who were typically "broke" but had good credit! They carried out the project without faculty interference and without faculty help except where specifically requested.

Gratifyingly brief welcoming addresses by Ralph W. McDonald, President of the University, and by Joyce Ludecker, President of the sponsoring Psi Chi chapter, started the convention. The morning session of six papers followed:

- "Factors and Attitudes Affecting Local and Out of Town Buying." Ann Ebert, Wittenberg College.
- "The Effects of Learning Upon Size Constancy." William Mitchell and Robert Taylor, Bowling Green.
- "The Relation of Scores on Intelligence Tests to Success in Teaching: A Survey of the Literature from 1924 to 1954." Donald C. Butler, Bowling Green.
- "The Student Rating of College Instructors by Use of the Forced-Choice Technique." Donald C. Flagg, Mount Union College.
- "Parapsychology: A Survey of a Pioneer Field of Research." William J. Peckham, Ohio Northern University.
- "The Effect of Belief and Disbelief in the Possibility of Extra-Sensory Perception on Extra-Sensory Perception Performance." Janet Feile and Lois Webb, Bowling Green.

The afternoon session consisted of four papers on learning:

- "The Roles of Procedural Paradigm and Definition of Similarity in Retroactive Inhibition." Lorna Smith, Oberlin College.
- "An Investigation of Contiguity in Sensory Pre-Conditioning." Barbara Dowds and Harold Houk, Bowling Green.
- "Extinction of an Avoidance Response." Jane Dubois, Oberlin College.
- "A Study of the Learning Performance of Rats on Regular and Simulated Day-Night Schedules." Arthur Greenfield and Joyce Ludecker, Bowling Green.

Qualitatively, the papers were quite good. At least two of them were of such calibre that publication is planned. The presentations were in some

respects superior to those often heard at the regional and national meetings. Visual aids were appropriate; oral delivery was audible. In general, the students handled well questions from the floor. These came freely from students in varying stages of preparation—a fact which suggests that possibly there was some stimulation of research interest.

A symposium on "Current and Predicted Trends in Psychological Research" completed the afternoon session. Chairman was Psi Chi member William Butterbaugh; participants were psychologists representing various areas of theoretical and applied psychology: James G. Bond, Toledo State Hospital; Charles E. Hamilton, University of Michigan; Donald R. Meyer, Ohio State University; and James R. Oliver, Cadillac Motor Car Division. Panel members were kept busy replying to questions long after the meeting was officially closed. Apparently, these people from the research "firing line" also succeeded in stimulating some interest in psychological research. Further research emphasis came at a banquet concluding the colloquium as an address by Clarence J. Leuba, Antioch College: "A New Look at Curiosity and Creativeness."

THE QUESTIONNAIRE

In an intermission between the session of papers and the symposium, a one-page questionnaire was handed out to the audience. Thirty-eight people responded. They were primarily male, undergraduate students majoring or minoring in psychology. Approximately half of them were from other schools. The clinical-counseling interest area was indicated by one third of them, the remainder dividing their responses about equally between other alternatives: theoretical, industrial, and "a very general interest."

Thirty-five respondents attended both the symposium and at least part of the papers. Over a third attended all parts of the program. Attendance at the banquet seems to have been somewhat related to educational level; faculty and graduate students were, proportionately, better represented. As might be expected, relatively few off-campus people remained for the banquet.

They were asked whether faculty members should read papers. No over-all consensus was readily apparent. Seventeen respondents said "yes," twenty said "no," and one wrote in "perhaps a few." As a general rule, faculty members themselves and off-campus people seemed to oppose this idea.

Most respondents favored symposia with students participating. This is largely a function of the attitude of Bowling Green students, not widely shared by those from other schools. Of the fifteen local respondents, fourteen favor student symposia; only nine of the nineteen off-campus respondents indicated a similar view.

Some questions concerned programming. Generally, the respondents favored keeping the time distribution as it was rather than giving more time proportionately either to papers or to symposia. (Of the six respondents favoring a change, five preferred more symposium time.) They seemed to dislike the suggestion of concurrent special interest meetings, and over half of them indicated that the length of the meeting should be kept at the one day level. Approximately one-third favored a two-day meeting. Proportionately more Bowling Green people favored the two-day idea (57%) than did those from other schools (26%). (Generally, statistical tests have not been made. The questionnaire was used mainly as a "straw-in-the-wind," and its intrinsic unreliability—as well as that due to sample size—is recognized. This particular item, however, was considered crucial in the planning of future meetings; a test of significance was, therefore, deemed of interest. In this test, $t = 1.85$ which, with 32 degrees of freedom, approaches but does not reach the traditional 5% level of confidence.)

We asked, "Would you recommend to students in this area that they attend the meeting next year?" Except for one individual who failed to complete the questionnaire, the respondents unanimously gave the affirmative response.

Responses to the invitation to comment were so varied that they seem to defy classification. Only two were actually repeated: that time limits should be enforced, and that abstracts should be handed out in advance. Other suggestions included placing the symposium between sessions of papers, having a common meeting place for lunch, and more time for questions.

SUMMARY OF QUESTIONNAIRE

The questionnaire was handed out late in the afternoon, at a session where between fifty and sixty people were present, not necessarily those who attended the morning program. The thirty-eight respondents accounted for less than three-fourths of those who could have responded. We can only

speculate about the failure of others to respond. They may have been too busy talking. They may not have understood the questionnaire or had a pencil. They may have been just too kind. Of these, the first seems most plausible. Talking is an occupational trait of psychologists, and until this time there hadn't been the usual amount of corridor activity.

The only safe positive statement is that there is no evidence that the program met with disfavor. There does seem to be a preference for keeping it a one-day program with about a dozen student research papers and a symposium. This may mean that we are filling a specific, felt need perfectly; less pleasantly, it may reflect an attitude expressed as "this has been very nice, but let's not get carried away with it all." In either interpretation, the attitude would probably be classed as favorable, but the divergence of degree is considerable!

A GENERAL CONCLUSION

The ultimate criterion of the success of such a meeting is the extent to which it stimulates students—some day—to do some actual research. An intermediate criterion of some possible relevance might be growth of attendance from year to year. If adequately measured, however, growth will include both number and calibre of persons attending. If next year's meeting is attended by fewer persons, but these are intellectually able to seek, find, and carry out research studies, the program succeeded! This seems a desirable criterion, but methods of data gathering are elusive. In view of the criterion difficulties, it may be forgivable to reach conclusions on the basis of hunch.

Later conversations suggest that each participant felt he had achieved something. In nearly every case, the student indicated an awareness of deficiency of content or of presentation. From such knowledge of results, learning can take place. We believe, therefore, that these students have received a valuable experience in condensing, abstracting, and reporting research. To provide such experience was the first objective.

Pertinent research questions were raised, not only during the meeting, but after it was over. Students in classes asked questions of methodological and theoretical importance raised at the colloquium. Surely, we have stimulated at least some students to have an interest in psychology as a field of

scientific enquiry rather than as a branch of mental philosophy. To stimulate such interest was our second objective.

The third objective was to have a sufficiently interesting meeting that those who came would want to return another year. Questionnaire results seem to indicate that this, too, has been satisfied.

On the basis of hunch, then, we can feel largely

satisfied with the extent to which the objectives stated have been met by the First Annual Psychology Colloquium at Bowling Green State University. We can feel, also, that such a meeting is a potentially powerful instructional tool which might profitably be adopted by colleges and universities of other areas.

Received April 11, 1955.

THE USE OF MAGNETIZED TAPE RECORDING IN PSYCHOLOGICAL LABORATORIES

W. N. MCBAIN

McGill University

RECENT technical improvements in the recording of sound on magnetized tape have put at the service of psychologists a versatile and relatively economical means of achieving greater efficiency in teaching and more adequate control in experimentation. Machines now selling in the medium price range show frequency response characteristics and mechanical reliability which make them acceptable additions to laboratory equipment.

Common uses. At the present time tape recorders are often used to make a permanent record of verbal responses in communication, industrial, personality and clinical research. Recordings taken at experimental or work sessions in group dynamics or group therapy may be used for transcription, for feedback to the group, or for instructional purposes. The tapes may be filed conveniently for future study, or re-used when no longer current. In the latter case plastic-base tapes are found to be extremely durable for continuous use, while in the former, paper tape is sometimes still obtainable at lower cost. Extra-thin plastic tape, while more expensive, conserves storage space and makes possible longer uninterrupted recordings without changing reels. The advantages of using tape equipment in this way are so obvious that other more "psychological" uses may have been overlooked, even in laboratories where it is now available.

Stimulus presentation. In some experiments where instructions or verbal stimuli have to be repeated to each subject, nuances of tone and emphasis may be critical. Standardization by the use of tape recordings is less expensive than using disc

recordings. Instructions may be re-recorded on tape until perfect with no waste, or minor imperfections may be edited, and the quality of the completed tape does not deteriorate even after an indefinite number of replays. Magnetic recording was used by the writer to achieve control of the quality of verbal suggestion in a Hull-type sway test. Pretesting showed a definite tendency for instructions given verbally to be influenced by the response of the subject. Recorded instructions were used for a first standard test by which subjects were assigned to experimental or control groups. By rapid winding to positions already marked on the reel it was found possible to use alternative instructions for a second test with very little delay.

Timed stimuli. The constant linear velocity of recording and reproduction combined with ease of splicing makes possible accurate timing of auditory stimuli. In another experiment precisely timed tones and intervals of silence were required. Only one oscillator was available, and none of the complicated switching equipment ordinarily necessary for such a purpose. Long lengths of tape were recorded at the required frequencies. The linear velocity of the machine to be used was checked and pieces of tape cut to the correct lengths for the required intervals. These were spliced in the predetermined stimulus pattern, with blank tape used for the silent intervals. Instructions were later added. Another advantage for this type of work is that the usual diagonal splice reduces the objectionable speaker click caused by the abrupt onset of the stimulus. With reliable equipment it

should be possible to prepare stimuli for demonstrations and experiments in the estimation of time in a similar manner. Such techniques make possible economies in equipment and reduce the likelihood of experimenter error.

Duplication. Material recorded on tape may easily be re-recorded with no appreciable loss in quality. The subjects in an experiment were to judge whether portions of tunes were exactly the same when played the second time as they were the first. The quality of the unchanged tunes was controlled by using tape duplication. This ensured that no accidental variations were mistaken for changes in the relevant stimulus dimension. Duplication requires two sets of high fidelity equipment with equivalent characteristics, but the writer has found broadcasting stations, where such equipment is usually available, most cooperative in this respect.

Other uses. Once tape equipment is acquired, other uses will undoubtedly suggest themselves to the ingenious experimenter. Novel stimuli for learning experiments may be developed by running tape in reverse. Dual track equipment, designed for consecutive recording on the two halves of the tape, may be modified so the two halves are recorded simultaneously but independently. Such a machine may be used to demonstrate the common auditory phenomena—beats, masking, etc.—and also for experiments in binaural stimulation. This may be less expensive than the purchase of such equipment, now available commercially. The latter is of professional quality, and hence quite costly. Tape machines with separate recording and playback heads have already been used to investigate the effects on speech of delayed feedback.¹

Selection and operation. Certain difficulties in the operating of tape recorders may be forestalled by care in purchasing and maintaining them. There are great variations in the quality of equipment, and not all manufacturers are equally conservative in their claims. The potential buyer should be cautioned against accepting advertised specifications as indicating the actual day-to-day performance of

any particular machine. It is better to check with users and impartial experts as to the stability and dependability of the characteristics for a particular make, and to insist upon a trial, using adequate test equipment if possible. Different machines, for instance, can be compared as to constancy of tape speed by recording a constant tone from an oscillator, moving the tape slightly by hand, and then comparing the original tone with the playback on an oscilloscope. Frequency response characteristics may be checked with the same instruments if their calibration is dependable. It is wise to insist upon obtaining both mechanical and electrical diagrams at the time of purchase, and if possible professional maintenance instructions.

Certain points are critical in maintenance. Over-lubrication may lead to slippage in the drive mechanism. Leaving the forward drive engaged when the machine is not in use may distort the shape of rubber rollers and cause temporary "flutter." The recording and erase heads should be kept clean and occasionally treated with an alternating current electromagnet to remove residual permanent magnetism. If removed from the factory setting the heads must be realigned when replaced. These cautions merely emphasize the fact that, when used in experiments, the tape recorder must be treated and maintained as a precision instrument.

Splicing is a simple operation, although one requiring some care. It is always done on the bias, with no overlap of the magnetic tape allowed. Thin splicing tape coated with a special adhesive is used, and is applied on the shiny, nonmagnetic side of the recording tape. Words, or even syllables, can be edited out of a tape in this way, and by listening to the product one cannot detect a carefully made splice. The writer has a 9-minute experimental tape which contains more than 110 splices.

When he has become accustomed to the merciless accuracy of magnetic tape, the experimenter may have sufficient courage to record his own lectures, or even his leading of a discussion. This is not recommended for those with inadequate ego strength. Used with discretion and perseverance, however, the results of this use may in themselves justify the investment in a tape recorder.

Received June 24, 1955.

¹ G. FAIRBANKS, & R. JAEGER. A device for continuously variable time delay of headset monitoring during magnetic recording of speech, *J. Speech Hearing Disorders*, 1951, 16, 162-166.

CURRENT ACTIVITIES OF THE POLICY AND PLANNING BOARD

THIS is a brief report to the membership on activities of the Policy and Planning Board during the year 1954-55 and on plans for the work during the current year.

At its spring meeting in 1955, the Policy and Planning Board, under the chairmanship of Harry F. Harlow, discussed a number of problems of importance to the Association. The Board first reviewed the status of two studies on psychology as a science and a profession, being carried out under the sponsorship of a committee of the Policy and Planning Board and supported by grants from the National Science Foundation. Project B, under the direction of Kenneth E. Clark, is moving toward completion, and Project A, under the direction of Sigmund Koch, though for several reasons moving more slowly than initially projected, appears to be moving ahead in a satisfactory manner. The Board devoted some time to a consideration of instruction in psychology in general education programs. The stimulus for the discussion was a paper by Donald B. Lindsley entitled "Psychology in General Education." It was the consensus of the Board that attention needs to be given to the contribution that psychology can make to a broad liberal education, particularly with reference to emerging patterns of organization of undergraduate curriculums. The Board then turned to certain concerns with reference to the operation of the Central Office. Central among these was the idea that professional employees of the American Psychological Association should have some opportunities for their own research while serving as staff members in the APA Central Office. It was felt that some study should be given to the manner in which opportunities for research might be made while working for the APA. The Board felt that the APA, as increasing demands are made upon the Central Office, might consider employing, on temporary appointments, distinguished psychologists who are on sabbatical leaves or who have recently retired. Among the kinds of functions that such persons might serve would be that of a "roving psychological ambassador" without specific duties other than freedom to consider broad policy and public relations matters.

The Policy and Planning Board next considered the problem of improving procedures for the selection of graduate students. It was recognized that many different groups have interest in this problem

and the Board wished to stimulate a coordination of efforts, feeling that standards and procedures for selection of students remains one of the most critical problems of the profession.

The Board evidenced continuing perplexity about what should be done with regard to the structure of the American Psychological Association. The Board debated this issue without identifying any solutions that seem clearly adequate. However, growing consensus on several points seemed to be evident and the problem was carried over for study by the next Board. The retiring members of the Policy and Planning Board for 1955 are Harry F. Harlow, Dael Wolfe, and Dorothy C. Adkins.

It has been the custom of the Policy and Planning Board to meet briefly in September at the time of the annual meeting and then again for several days in the Spring. At the San Francisco meeting, the members of the new Board expressed the conviction that the P and P Board should shake free of the many routine tasks that are referred to it and concentrate on issues with higher probability of making a difference in the development of psychology in America. No one felt certain that the P and P Board *could* come up with ideas that would make a difference, but all were disposed to try. There appeared to be acceptance of the idea that if the Policy and Planning Board *could not* effectively concern itself with policies and plans for the American Psychological Association, as one instrument shaping American Psychology, the Board should probably go out of business.

The challenge to think broadly about psychology and the APA suggested a new plan for meetings of the P and P Board. It was clear that the Board could not get its work done at one meeting in the Spring if it chose to get involved with more than routine matters. It was therefore decided to have a planning meeting in the fall at which problems would be identified and subcommittee assignments made. Subcommittees would prepare papers which would be discussed at a longer meeting of the Board in the Spring. In accordance with this plan, the Board met in Chicago on October 31 and planned its work for the year. Below are brief summaries of the problems identified for study.

1. *The structure and function of the APA.* Continuing the work initiated in the preceding year, attention will be devoted during 1955-56 to study-

ing the structure of the APA with a view toward recommendations that might make the Association more effective in the service of psychology and of psychologists. Preliminary discussions centered around the proposed divisional reorganization, procedures for the election of the president, and the functions of the Policy and Planning Board. The topic was assigned to a subcommittee composed of Launor F. Carter, Victor C. Raimy, and Donald B. Lindsley.

2. *Subdoctoral education.* The Board considered problems of education at the subdoctoral level for the performance of specialized functions in psychology. The growing demand for psychological services suggests that new patterns of training must be found. The P and P Board agreed that the APA has an appropriate function in helping define patterns for training. At the same time, the problem reopens issues (such as the concept of psychology as both a science and a profession) which affect all of psychology and require that the problem of subdoctoral education be conceived in a broader context than the planning of curriculums. Because the Education and Training Board is already working on subdoctoral training, the notes on the P and P Board discussion were passed on to the E and T Board, with a general offer of assistance.

3. *Interpreting psychology to the public.* The Board felt it extremely important for psychology to examine how it communicates with various groups in society, what it says to them, and how it listens to what they have to say about psychology. What are the ground rules for informing the general public about psychology, and what are the responsibilities of the APA and of individual psychologists in this regard? Is there public distrust of scientists, psychologists among them, and if so, what should be done about it? Should the methods of problem solving used in psychology be taught not only in secondary schools but even in elementary schools? What is the role of psychology in general education? Such questions as these will be studied during the year. Subcommittee assignment: Douglas McGregor and Edwin B. Newman.

4. *Social responsibilities of psychologists.* As psychologists become more efficient in predicting human behavior, their knowledge can be used by themselves or by others to control the behavior of people. Increased moral and ethical responsibility is the inevitable consequence. The education of

psychologists must result not only in technical competence in the discovery and application of knowledge but also in wisdom regarding the uses of power. How do you train psychologists to have both technical competence and wisdom? This topic was assigned to Nicholas Hobbs and Carl R. Rogers.

5. *Training for creativity in psychology.* Recent years have seen a phenomenal growth of the field of psychology. Paralleling this growth has been an increasing concern for standards of selection, training, and certification. The years following the war have been notable for alert, vigorous efforts on the part of psychologists, working through such instrumentalities as the E and T Board and ABEPP, to provide for the orderly development of their science and profession. Many dangers have been successfully avoided but the very success of efforts toward higher standards have opened a new and serious danger, the possibility of so highly institutionalizing psychology that originality and creativity are squeezed out of the field. Are we now rewarding conformity more than creativity? Are we training scientific technicians or creative scientists? The Board felt it most important that attention be focused on training for creativity in psychology. The subcommittee for this knotty problem is the Board itself.

The Board has one remaining task held over from the preceding year: revision of the APA Bylaws. It is the responsibility of the Policy and Planning Board to review the Bylaws every five years and make suggestions for revision. Ann Magaret Garner and Launor F. Carter are doing this job.

This, then, is the agenda for the year's work. Working papers will be prepared on Topics 1, 3, 4, and 5. These will be the basis for discussion at a meeting of the Board late in spring. A summary report will be made to the membership. Anyone having ideas about any of the problems is urged to write to subcommittee members or to the chairman of the Board.

LAUNOR F. CARTER
ANN M. GARNER
DONALD B. LINDSLEY
DOUGLAS MCGREGOR
EDWIN B. NEWMAN
VICTOR C. RAIMY
CARL R. ROGERS
NICHOLAS HOBBS, *Chairman*

Comment

High School Teachers of Psychology and APA

The Division on the Teaching of Psychology has a committee studying the teaching of psychology in high schools. In the spring and fall of 1954 this committee sent a questionnaire to 484 high school teachers of psychology in 42 states. Usable replies were received from 217 (44.8 per cent) teachers in 34 states. A total of 8,785 students in their classes in one semester was reported by 201 of these teachers. The questionnaire was concerned primarily with methods of teaching psychology. Responses concerning methods are not reported here, but psychologists will be interested in certain responses related to contacts with APA.

Teachers were asked to indicate what magazines and journals they made use of in their teaching. Of 197 responses to the question, "Do you use 'psychological' articles in popular magazines?" 178 (90.4 per cent) were in the affirmative and 19 (9.6 per cent) were in the negative. The magazines most frequently mentioned as being used were: *Reader's Digest*, *Saturday Evening Post*, *Life*, *Colliers*, *Ladies Home Journal*, *Look*, *Coronet*. Of 186 responses to the question, "Do you use articles in journals published by the American Psychological Association?" 167 (89.8 per cent) were in the negative and 19 (10.2 per cent) were in the affirmative. The next question was, "If 'Yes,' which journals do you find to be most useful?" Some teachers mentioned journals which are not published by APA. Of the 19 teachers who said that they used APA journals, only four named journals actually published by APA. The *Journal of Applied Psychology* was mentioned three times, the *Journal of Abnormal and Social Psychology* was mentioned twice. Furthermore, it is of interest to note that of 187 teachers answering the question, "Do you use 'psychological' articles in newspapers?" 174 (93.0 per cent) replied in the affirmative.

Two other questions were: "Are you a member of the American Psychological Association? If not, would you be interested in becoming a member providing that some class of membership were established for high school teachers of psychology?" Of the 217 teachers, only two are members of APA. Another had been an Associate but had permitted his membership to lapse. Of the 215 who are not members of APA, 126 (58.6 per cent) indicated that they would be interested in becoming members, an additional 60 (27.9 per cent) were uncertain, and only 10 (4.7 per cent) replied in the negative. Nineteen (8.8 per cent) did not answer the second question. Of those stating that they would

not care to become members, some explained that they would soon be retiring, that they were only teaching psychology temporarily, or that their principal interest was in another field. Of those stating that they were interested in becoming members, some asked how to go about applying for membership, the amount of the dues, and the benefits to be derived from membership.

With so few high school teachers of psychology being members of APA and with so few using journals published by APA, there is danger that many thousands of students will be introduced to psychology in a manner not in accord with the best interests of psychology as a science and as a profession. Should APA provide some kind of affiliation for high school teachers of psychology, as it does for students, so that they may have contacts with psychologists and receive professional journals?

T. L. ENGLE

Indiana University, Fort Wayne Center

Reprints: The New Ethic

What should be done about reprints? We used to order a batch—two hundred would do for me—and send them to a list of friends and of persons interested in the subject treated or involved somehow in the research, saving some copies for future requests—and that was that. Now the requests are so numerous that three hundred reprints are not enough and the costs become an important item in a professor's budget. There have been a couple of complaints about the modern brash use of postcards to request reprints, especially about graduate students' using printed cards supplied by their departments to requisition the interesting articles in the new journals as they appear (2, 4), but the fact is that, if you publish in *Science*, the *Scientific Monthly* or the *American Scientist*, the principal postcard demand comes from contemporaries in science who are not psychologists. One of the complainers (2) has, moreover, recently been held up to public ridicule by a group of physicists who do not agree with him (1). C. T. Morgan expresses his opinion that the education of eager, aggressive graduate students may be more important than the convenience of otiose contemporaries (3), and, although he may be overestimating the relative importance of youth, he has convinced me that the old ethic is no longer the best and that we need some new rules of good manners.

Here is what I suggest. (a) Give or send reprints to those persons who will almost certainly be interested

in the paper because of their general expertness, or their special activity, or their being mentioned in the paper. (b) Give or send also to those professional friends who will be interested in the paper simply because of its author, not because of its content. The lists for *a* and *b* can be broad or narrowly limited according as the author does or does not get pleasure from this kind of giving. This is his pleasure; let him decide how much he wishes to spend on it. Then (c) let the author meet requests by letter and postcard as they come in as long as he feels he can afford to. He is under no obligation to respond, but there is no sense in his getting stuffy and objecting to being thanked in printed form in advance or to being solicited by postcard instead of by personal letter. This is the atomic age. Let him accept it. If he has guessed wrong about how good a paper he wrote, he can get more reprints, excellently reproduced, by the new Xerox process. Let him write The Reprint Company, 1025 Connecticut Avenue, N.W., Washington 6, D. C. They charge about what reprints from standing type cost in the first place. They do much of APA's reprinting.

Why is this procedure a new ethic? There are two reasons. In the first place, I am making it permissive for young men to ask favors of their seniors on printed postcards, a brash proceeding but an efficient one in tense, competitive America. Let the older man be pleased that youth notices him at all. In the second place, it is important to give notice of this new ethic if it is to be adopted, so that the friends who are not sent unsolicited reprints will not hesitate to solicit them, thus flattering the author by showing how much his work is valued by those whom he likes and admires. In short, I wish to say to my friends: If you want any of my reprints, please flatter me by asking for them; it is a mark of very special favor if they come without your asking.

Am I right or wrong? Could we have some more comment on this new ethic?

REFERENCES

1. ANDERSON, E. C., *et alii multi*. Back to the Homeric tradition. *Amer. Scientist*, 1955, 43, 117-119.
2. HEDGPETH, J. W. On soliciting reprints. *Amer. Scientist*, 1954, 42, 497-499.
3. MORGAN, C. T. Correspondence.
4. ZELIGS, ROSE. Reprints and journal subscriptions. *Amer. Psychologist*, 1953, 8, 708.

EDWIN G. BORING
Harvard University

Manners, Money, and Reprints

Some sharp things have been written lately about people who ask authors for reprints, especially people who make their requests on printed postcards. Being

one who regularly uses postcards for requesting reprints, I took note of these bits of asperity but paid them no further attention until an exchange of correspondence with Professor Boring got me to thinking that the etiquette, economics, and benefits of requesting reprints needed some airing. This is a brief account of the problem as I see it.

Institutional libraries are undoubtedly the indispensable depositories of all, or nearly all, the journals a psychologist ever needs to consult. Nonetheless, they have some serious limitations. For one thing, the journals in them are usually spread over a wide geographical area with separate journals often rods and sometimes miles apart. To get an article when he wants it, a psychologist may travel minutes and miles, consuming the better part of an afternoon, merely to have a brief look at it. You usually cannot smoke in libraries either, and this is enough to bring some scholars to a dead halt. Libraries also bind their journals into nice, fat volumes, and one may tussle with several hundred-weight to get access to a few articles. Then, too, the journal one wants in a hurry is all too often just the one that is out of the library. A reader, finally, sometimes wants to make notes on an article of special interest to him, and libraries are not happy if he does it on their journals.

All this argues that serious students of the original literature need to have at least some of that literature closer to their elbows than the nearest library. One obvious alternative is to subscribe personally to journals. This has its place, but it also has its limits. To depend on personal subscriptions for all the articles one wants handy is both economically and physically unfeasible. In my own reprint library are articles from over 200 different journals. Perhaps this number is unusually large, but no one can afford to subscribe to a half or a quarter that number. If he could, he would have no place to put them. And if he had both the money and the five-room suite to house these journals, he would find that virtually all his shelf space was occupied with articles he never used—just to have the occasional article he frequently needed.

By the process of elimination, then, we are led to conclude that some psychologists need extensive personal libraries of reprints in order to have just those articles they want when they want them. Who are these psychologists? And for what purposes do they need reprints? Graduate students often need them when they are studying intensively a few original articles related to their research or seminar reports. The supervisors of graduate students, and even of undergraduates, need them to answer quickly some of the questions arising in independent work. Teachers need them for preparing demonstrations and working out examples for lectures. Research workers need them to

sharpen thinking on problems, to check points of research design, and to guide many aspects of the research process. Finally, the textbook writer, who should be working for the most part from original literature, urgently needs them. He saves countless hours and more accurately documents his text by having around him the literature that is most important to his work.

There is another point deserving attention. Most of us agree that research does not become part of science until it is published. But what is publication? Certainly not merely the depositing of printed words on the library shelf. The publication process, rather, is only complete when these words have been read by somebody and incorporated into his working knowledge. Reprints are one such avenue to "publication." Indeed it is probably a fair wager that more articles are read in reprint form than in the library journals. More important, those who read reprints are the most likely to make use of them in research and to disseminate their information through other more widely read publications.

Granting the need for reprints, how should a person go about getting them? It has long been the custom for an author to purchase reprints of his article, to send them out to his friends and others presumed to be interested in it, and to supply them to others on request. This system makes the author foot the bill and is unlike most commerce in which the consumer pays for what he gets. The inexperienced author, trying to skimp on money, often buys too few reprints. If his article is popular, which is difficult to forecast, he soon finds himself depleted and is often handicapped in his own use of the article. The wise, and perhaps more affluent, author buys several hundred reprints, thus preparing for the long haul when, ten to twenty years later, he is still receiving requests for his reprints.

Some authors seem to resent the fact that they must lay out the money for reprints after they have gone to the trouble of doing the work and writing the article. This seems shortsighted. Buying reprints is just one of several professional costs—fortunately the income tax collector agrees—that in the long run will be recouped. In fact, authors may have received some payment in advance, for they may benefit from other authors' reprints before they have published anything themselves. The request for a reprint, moreover, is really a compliment. It virtually promises that the article will be read, and read more carefully than its mate in the journal is likely to be. The author presumably wrote the article with the idea that it would be read, and the reprint request is his assurance that he achieved his purpose. Finally, and probably most important, the exchange of reprints in the long run creates wealth, because it builds reprint libraries whose convenience and usefulness far exceed the original cost of the reprints themselves.

My final concern is with the "manners" involved in requesting reprints. It has been argued that the person doing the requesting should pay the author the courtesy of writing a letter identifying himself and indicating his purpose in requesting it. All this seems unnecessary. Some people, of course, indiscriminately ask for reprints and "waste" them. On the other hand, how can an author possibly evaluate the person's need for a reprint? Perhaps the reprint sent to the high school student or to other young, obscure, or relatively untrained individuals plants the seed that later sprouts a good psychologist and author of his own reprints. Certainly I owe much to those who graciously sent me their reprints when I was a youngster. A great deal of waste can be tolerated if by doing so we can get reprints into the hands of people who can make good use of them.

Letters or postcards? A letter is a courtesy that is always appreciated, but it seems superfluous and troublesome. It tempts the writer to make a blanket request for reprints, which is justly resented by an author unless the reason for it is fully explained, and perhaps also to raise needlessly some question to be answered by the author. If we all know the general purpose of requesting reprints, why not make it a routine that burdens us as little as possible? The printed postcard does the job, and I am glad to see that most people are now using this form of request.

An argument can be made for a completely different way of handling the problem of reprints. Instead of authors furnishing them, the publishers of journals might stock and sell them just as they sell individual numbers of journals. Such a scheme obviously presents problems for the publisher of stocking, accounting, handling, and financing many different reprints. It may or may not be feasible. If it is, it probably is to be preferred over the present practice of "privately" financing and distributing reprints. However, until such a scheme is in operation, it would seem to be in everybody's interest for authors to buy reprints and to send them routinely to people who request them. Even on postcards.

CLIFFORD T. MORGAN

The Johns Hopkins University

Thoughts on the Proposal that the Number of Divisions of the American Psychological Association be Reduced

Two major and quite different sets of functions are served by the Association. One set of functions is directed toward the development of Psychology as a Science, or a Profession; i.e., as a body of knowledge, or as a discipline comprising formalized relationships, abstracted from the viewpoints, behavior, or problems of individual psychologists. These functions are expressed especially through the holding of scientific and professional meetings and provisions for scientific and profes-

sional publication. A second set of functions of the Association is related to the status and welfare of its members and is expressed through the establishing of standards for training, development of codes of ethics, interest in legislation that affects psychologists, and related activities.

As at present organized, both sets of functions are carried on by the same groups of officers within each division and in the Association as a whole, the relative emphasis within different divisions, however, showing wide variation. The same holds true for the affiliated state associations. Turning from the organization to the individual psychologist, we find the same problem. Each has at stake his scientific or professional interest (his psychological interest, one might say) and also the personal welfare of himself and his family (his pocketbook). He must be concerned about both, and though there may be conflicts between the two sets of interests, he deals with both usually without too much confusion.

A Policy and Planning Board proposal referred to the divisions and the membership of the American Psychological Association for consideration recognized dual sets of functions by suggesting that the organization be simplified by decreasing the number of divisions, but that flexibility and diversity be retained by providing for unspecified, and possibly changing interest groups. The existing confusion of the two sets of functions, however, has not been made explicit. The names of present divisions reflect this confusion. For example, the name of Division 12, *Division of Clinical Psychology*, expresses its professional interest, not its active concern for the status and economic welfare of its members; whereas that of Division 18, *Psychologists in Public Service*, would seem by title to be set up for activities other than the interest preoccupations of its members since it may include individuals trained primarily in tests and measures, or those working as clinicians or counselors, or others in consulting or administrative capacities. Names of other divisions are similarly ambiguous.

A possible reorganization of the APA structure designed to make explicit the two sets of functions is suggested as follows: (a) Retain as divisions (i.e., *interest groups*), those of the present divisions which wish to be continued, each responsible for its contribution to the annual meeting and for its own stake in the publications and other scientific and professional activities of the association. (b) In addition, set up within the association a limited number of *sections*, comprising among them the entire membership, each representing the economic and political interest of its members. The officers of each *section*, with the Board of Directors and Council of the APA would be concerned solely with whatever economic and political problems their respective membership would present.

Under such an organization those whose pay checks come from universities would form a *section* with quite distinct problems whether their major activity was teaching, research, or work in a university clinic. There would be need for a *section* to include those who work for local and private agencies; perhaps this would include those working for school districts, perhaps not. A third *section* would include the increasing group among our membership who are self-employed, with problems quite different from those of the salaried worker. This group now cuts across several divisions, especially 12, 13, and 14. Federal and State employees would form another *section*, including: research workers, clinical psychologists, workers involved in problems of evaluation, measurement, and personnel, consultants and administrators, all of whom carry on their professional activities within a common organizational framework that has little in common with that of a college campus or the office of a private consultant. At most, the number of sections would probably not need to be more than a quarter of the present number of divisions, and the political and economic problems of each would be relatively homogeneous and more clearly defined.

As a result of such a reorganization, the officers of the association as a whole would deal separately with the two sets of functions. When concerned with problems such as the planning of scientific and professional meetings, matters of publication and interprofessional relationships in their broader aspects, they would work with the officers of the divisions. When dealing with problems of immediate personal concern to individual members, or those relating to status or economic welfare, they would work with fewer groups, i.e., with officers of *sections*, whose specific problems could be more easily formulated than is possible under the present division structure.

At first glance, suggestion of a second classification of members might seem to exaggerate the problems of an already unwieldy organization. The present classification of the APA membership, by divisions, is not effective, however, since it fails to represent adequately the two groups of functions which have become, of necessity, the responsibility of our association. Raising the question of a dual classification of membership which would clearly separate the two sets of obligations may at least clarify a fundamental problem. Under the suggested plan (with provisions that members might be represented in two sections where this was necessary) the present duplication of division membership might become less burdensome to individuals, the work of the Central Office would be more clearly defined, and the confusion of overlapping responsibilities among divisions could be markedly reduced.

ELAINE F. KINDER
Albany, New York

Psychological Notes and News

Norman Lowenstein of Brooklyn, New York, died December 18, 1955.

William A. West, Minneapolis, Minnesota, died on December 20, 1955.

Esther Gatewood Uhrbrock of Cincinnati, Ohio, died of a heart attack on February 11, 1956.

Virginia G. Halpin, Missoula, Montana, died on February 22, 1956.

Robert Lindner, Baltimore, Maryland, died on February 27, 1956.

John P. Foley, Jr., formerly vice president of The Psychological Corporation and director of its Industrial Division, is now president of the newly-formed J. P. Foley and Company, Inc., consultants to management, with offices in New York City.

Lincoln F. Hanson is now Research Personnel Officer at the Operations Research Office of The Johns Hopkins University, Chevy Chase, Maryland. He reports that while the need for psychologists at ORO at the moment is not great, any interested colleagues with interest or experience in the ever-widening fringes of psychology, and especially those with backgrounds in other sciences, are welcome to call.

Walter H. Shipley, professor of psychology and chairman of the department of psychology and education at Wheaton College, is on leave of absence during the second semester of 1955-56. David Shapiro, lecturer in psychology at Massachusetts Institute of Technology, is teaching Dr. Shipley's courses during his absence. Other members of the department include Albin R. Gilbert, Mary McB. Green, Evelyn I. Banning, Marian H. Mowatt, Richard O. Goodwillie, Dorothy Ann Caspar, and Alice F. Beasley.

Alma A. Paulsen, chief psychologist at the Bureau of Child Guidance, New York City Board of Education, has been named by the New York Community Trust as recipient of the first scholar-

ship from the Beatrice M. Hinkle Memorial Fund. Established in the foundation in 1954, the Fund honors Dr. Beatrice M. Hinkle, pioneer in psychiatry and psychotherapy. Dr. Paulsen, on sabbatical leave, will study for six months at The Zurich Institute.

C. Leonard Muskin has recently joined the staff of the Federation of the Handicapped in New York City.

June Roberts Cornog has joined the National Analysts, Inc., Philadelphia, Pennsylvania, as a study director in market research.

Douglas Y. Cornog has left H. L. Yoh Company, Inc., to accept a position as research associate with Courtney and Company, Philadelphia, Pennsylvania.

Donald A. Gaal, formerly of the Oliver Iron and Steel Company, Pittsburgh, has accepted a position as Manpower Development Specialist in the Evendale Operating Department of the General Electric Company in Cincinnati, Ohio.

Howard S. Rome has resigned his position at the Rochester Child Guidance Clinic, New York State Department of Mental Hygiene and is now with the AFES, Mental Testing Section, Military Personnel Procurement Group in St. Louis, Missouri.

Arnold M. Small has accepted a position with CONVAIR, A Division of General Dynamics Corporation, San Diego, California, as head of reliability and human engineering functions in the Engineering Department. Previously head of the Human Factors Division at the Navy Electronics Laboratory, he will be in charge of human factors research, development and design work growing out of military and civilian needs in the aircraft and missile fields. CONVAIR is now developing a staff for this work.

LTJG Thomas A. Tussman, Jr., (MSC) USNR, was released from active duty at the Naval Medical Research Institute and has now joined the

permanent staff of Psychological Research Associates, Washington, D. C.

Dwight L. Hubbart has been appointed psychologist at the Los Angeles County Juvenile Hall Clinic.

Bernard B. Braen was appointed chief clinical psychologist at the Onondaga County Child Guidance Center on February 1, 1956. **Marilyn Rothchild** has filled the position of junior clinical psychologist.

Carl B. Smith, Jr., formerly chief psychologist at Terrell State Hospital, Terrell, Texas, has joined the staff of Woodmere State Hospital, Evansville, Indiana. **Sidney Kasper** has also joined the Evansville Psychology Department as an intern in clinical psychology.

The division of psychology at the **Delaware State Hospital and Mental Hygiene Clinic** at Farnhurst now consists of the following persons: Leon Dunkel, Walter Haas, Salvatore Pappalardo, Fred Wissner. James Concannon and Alexander Nemeth are interns, being also assigned to Governor Bacon Health Center, Delaware City. Rudolf Lassner is chief.

Abraham M. Zeichner has been appointed director of psychological laboratories at the Fairfield State Hospital, Newton, Connecticut. The department includes: Peter P. Barbara, Blanche Glass, and Daniel C. Hutton senior clinical psychologists; John Beletsis, Jr. clinical psychologist.

S. Norman Feingold, Executive Director of the Jewish Vocational Service of Greater Boston, has recently been appointed a consultant for the Bellman Publishing Company's *Scholarships, Fellowships and Loans News Service*, a national clearing house of student aid.

C. J. Marsh, formerly with Varian Associates has joined the staff of the General Electric Microwave Laboratory at Stanford as manager of engineering administration.

James N. Farr will join the staff of John R. Martin Associates full time, effective June 1, 1956, when he will leave his position as assistant professor of psychology at New York University.

The **Lincoln State Hospital**, Lincoln, Nebraska, announces the appointment of Don C. Fitzgerald as

chief psychologist. **Charles L. Munson** is a member of the department of the psychology staff.

Marvin Greenbaum has been appointed assistant professor of clinical psychology at the University of Oregon Medical School.

Arthur Ayers has resigned as associate professor of industrial psychology at the University of Maryland and as of February 1, is personnel director of the Racquette River Paper Corporation, located in Potsdam, New York. In his new position, his responsibilities include industrial relations, as well as employee relations and training. He is responsible to H. Meltzer, who is personnel director as well as secretary and treasurer of the Orchard Paper Company, of which Racquette River Paper Corporation is a subsidiary.

Mildred Brody has left the Institute for Motivational Research and is now employed as personnel director for the United States Electric Mfg. Corp.

Henry L. Pope, Jr., is now director of marketing for Malden Mills, Incorporated, New York City. Previously, he was senior associate with Bruce Payne and Associates, Management Consultants, Westport, Connecticut.

Lynn E. Baker, chief psychologist, Office of the Chief of Research and Development, Department of the Army, has been designated army member on the Department of Defense Coordinating Committee on Personnel and Training. This committee provides a Staff mechanism for achieving a sound, coordinated, and integrated research and development program in the field of personnel and training within the Department of Defense. The major elements of the Personnel and Training Research Program include: research to improve selection, classification and utilization procedures; experiments designed to improve training, morale and leadership techniques; and increasing knowledge and technique for improving design of equipment respecting its compatibility with human aptitudes and limitations.

Lewis M. K. Long has recently joined the psychology staff of the department of psychiatry, University of Arkansas School of Medicine. Other members of the staff now include Sidney J. Fields, assistant professor and senior clinical psychologist,

and Roscoe A. Dykman, associate professor and director of research.

Rose Zeligs, Sherman Oaks, California, recently won second place cash award and George Washington Honor Medal in the national Freedoms Foundation contest, for her essay, "Freedom Begins With Me."

The psychology department of the **Cleveland Receiving Hospital and State Institute of Psychiatry** has recently made several changes in its staff. The staff now consists of: Ira Friedman, chief psychologist; Gladys Miller Friedman, Albert Paolino and George Steckler, senior psychologists; Alvis Eskey, Stanley Klingensmith and Herbert Shapiro, staff psychologists; Naomi Arond, Jerome Rosenblum, and Clarence Wankoff, psychological interns. George W. Albee, Calvin S. Hall, and Marguerite Hertz are consultants.

The department of psychology at the **Norristown State Hospital**, as of February 15, 1956, consists of the following: Mortimer B. Lipton, director, psychological services; Allan O. Howland, senior psychologist; Carol B. Griffin, psychologist; August L. Peastrel, Harold Brecher, James F. Duffy, Donald H. Armsby, Gerald Burday, trainees.

The **Military Operations Research Engineering Division** of the Lockheed Aircraft Corporation, Marietta, Georgia, announces the addition of Larry A. Doty and James T. Ray to its Human Engineering Panel. Dr. Doty was formerly assistant professor of psychology at Purdue University and Mr. Ray was formerly with Tulane University and Dunlap and Associates. Other full-time psychologists on the panel are: Oscar S. Adams, Jack A. Kraft, Robert C. Smader, and Kenneth S. Teel.

Frederick W. Trabold, Jr., formerly with Dunlap and Associates, has joined the Human Engineering Section, Crosley Government Products Division, AVCO Manufacturing Corporation, Cincinnati, Ohio. Vladimir A. Sklodowski is manager of the Section and Maurice A. Larue, Jr., is in charge of Systems Research. In addition to providing experimental research for the design of Crosley's military products, the human engineering facilities and services are now being offered to governmental agencies in the following areas: systems analysis, equipment design, and human characteristics analysis.

Gordon W. Allport is serving from March to September as consultant to the Institute for Social Research, University of Natal, King George V Avenue, Durban, South Africa. Recently he was elected an Honorary Member of the Deutsche Gesellschaft for Psychologie.

D. O. Hebb of McGill University delivered two lectures at the University of North Carolina on February 9 and 10 on the subjects: "The mammal and his environment: Studies in isolation, animal and human"; and "Alice in Wonderland, or Psychology as a biological science: Research strategy." The lectures were given under the auspices of the department of psychology and the Institute for Research in the Social Sciences.

Leslie P. Greenhill is the new editor of the *Psychological Cinema Register* at Pennsylvania State University. He succeeds Charles J. McIntyre, now with the office of Armed Forces Information and Education, Department of Defense.

Douglas Courtney and **Howard E. Mitchell** will represent the APA at the Sixth Annual Meeting of the American Academy of Political and Social Science on April 20-21, 1956.

Samuel Renshaw, professor of experimental psychology at Ohio State University, will receive the Navy Distinguished Public Service award for his "outstanding contribution to the Navy in the research and development of the visual recognition training program." Dr. Renshaw was academic director of this program at Ohio State University during World War II. Four thousand officers were trained in this method which he devised for visual perception, and the techniques were used aboard almost every Navy ship after 1943. Some 285,000 preflight cadets also benefited from this training.

VA DEPARTMENT OF MEDICINE AND SURGERY
ANNOUNCEMENTS

Clinical Psychology

Ellen Y. Y. Ahana, a graduate of the VA Training Program, Northwestern University, has been appointed to the staff of VA Hospital, Downey, Illinois.

Murray Bilmes, a graduate of the VA Training Program, New York University, has been appointed to the staff of VA Regional Office, Brooklyn, New York.

Virginia W. Eisen has been appointed to the staff of VA Hospital, Houston, Texas.

Richard N. Filer has transferred from the position of Chief Clinical Psychologist, VA Center, Hot Springs, South Dakota, to VA Center, Wood, Wisconsin, where he will develop and direct a special research program in the domiciliary designed to aid the Director of Homes, Central Office, in long-range planning.

Gloria J. Fischer, a graduate of the VA Training Program, Purdue University, has been appointed to the staff of VA Hospital, Marion, Indiana.

Andrew W. Foley has transferred from the position of Chief, Vocational Counseling, VA Hospital, Walla Walla, Washington, to the position of Chief Clinical Psychologist, VA Center, Hot Springs, South Dakota.

Leonard Krasner has transferred from the staff of VA Hospital, Lexington, Kentucky, to the position of Chief, Psychology Training Unit, VA Hospital, Palo Alto, California.

Gordon E. Rader, a graduate of the VA Training Program, Yale University, has been appointed to the staff of VA Hospital, Roanoke, Virginia.

Edward R. Strain has resigned from the staff of VA Hospital, Indianapolis, Indiana, to go into industrial counseling.

Julian Wohl, a graduate of the VA Training Program, University of Nebraska, has been appointed to the staff of VA Regional Office, Detroit, Michigan.

Counseling Psychology

Frank B. Martin has resigned from his position as Chief, Vocational Counseling Service, VA Hospital, Chillicothe, Ohio, to go into industrial counseling.

William A. Hunter has transferred from VA Hospital, Long Beach, California, to the position of Chief, Vocational Counseling Service, VA Hospital, Walla Walla, Washington.

John F. Muldoon, a graduate of the VA Training Program, University of Maryland, has been appointed to the staff of VA Hospital, Leech Farm Road, Pittsburgh, Pa.

Carl W. Boyer, formerly with Department of the Army, has accepted a position on the staff of VA Hospital, Downey, Illinois.

Wirt M. Wolff has resigned as Chief, Vocational Counseling Service, VA Hospital, Palo Alto, California.

The ninth annual meeting of the World Federation for Mental Health will be held in Berlin, Germany, from August 12 through 17. Theme of the meeting will be "Mental Health in Home and School." Inquiries should be sent to the Secretary-General, World Federation for Mental Health, 19 Manchester Street, London, W. 1, England. An international working conference on Student Mental Health will be held at Princeton, New Jersey in September, under the chairmanship of Dana Farnsworth.

The National Academy of Sciences, National Research Council, Advisory Board on Quartermaster Research and Development, Committee on Environmental Protection, Subcommittee on Hand Functioning and Handwear will sponsor a symposium on Protection and Functioning of the Hand in Cold Climates at the Headquarters, Quartermaster Research and Development Command, Natick, Massachusetts on April 23-24, 1956. Several papers will be presented on such topics as Psychological and Anthropological Factors, Physiological Factors, Operational Requirements, and Approaches to the Problem. Interested individuals are invited to attend. In order that adequate arrangements will be made, they should write to Dr. W. George Parks, Advisory Board on Quartermaster Research and Development, Department of Chemistry, University of Rhode Island, Kingston, Rhode Island.

The University of Houston and the Hogg Foundation are sponsoring a Symposium on Brain Stimulation: Subcortical Integrative Systems on April 26-29, 1956. The program will include several papers by researchers who have been working on various aspects of the problem.

The American Association for Public Opinion Research will hold its annual conference on May 24 to 27 at Buck Hill Falls, Pennsylvania. The conference will include sessions on Studies in Popular Culture, Communications Theory and Opinion Research, Determinants of Political Behavior, Research in Medicine and Public Health, Research on Academic Freedom and Other Civil Liberties, and American and Soviet Propaganda. Harry Alpert will give the presidential address on May 26.

A Workshop in Projective Methods is scheduled this summer, June 18 to July 7, at The New School for Social Research in New York City

under the direction of Camilla Kemple and Florence R. Miale. The courses in one- or two-week units, offer introductory and advanced work in the Rorschach method. Inquiries may be addressed to the Department of Psychology, Graduate Faculty, New School for Social Research, 66 West 12th Street, New York 11, N. Y.

The **Committee on Diagnostic Reading Tests, Inc.**, will hold several work-conferences during the summer of 1956. They will be held in New York City on June 25-July 6; Emory University on July 9-July 30, 1956; Santa Barbara on July 23-August 3; and Concordia College, August 3-August 17. For additional information and application blank write to Dr. Frances Triggs, Chairman, Committee on Diagnostic Reading Tests, Inc., Kingscote Apt. 3G, 419 W. 119 St., New York 27, N. Y.

School Psychologists' Institute. The First Professional Institute for School Psychologists, organized by the Division of School Psychologists, will be held in Evanston, August 27, 28, and 29, immediately preceding the annual meeting of the American Psychological Association in nearby Chicago. Arrangements for board, room, and meeting space are being made with Northwestern University. Enrollment in each of the three groups—differential diagnosis, preventive, diagnostic, and remedial practices in reading, and dissemination and implementation of findings—will be limited to 20 persons. Three full-day sessions are being planned for each group. Psychologists of national reputation in the respective areas are being invited to serve as leaders. The tuition charge will be \$25, and it is expected that costs for board and room will approximate \$7.50 per day. The applications of prospective institutents, who may be of either post-doctoral or subdoctoral status, will be screened in part on the basis of relevance of background, evidence of need, and date of application. While the applications of members of the Division of School Psychologists will be given prior consideration, those of nonmembers will be considered if there are vacancies. Applications are to be made by May 15. Further information and application blanks may be obtained from any of the following members of the Division 16, Professional Institute Committee: Helen Bogardus, Keith R. Jewell, T. E. Newland, (chairman) Edward A. Ricciuti, Thelma G. Voorhis, Emalyn R. Weiss, Jeannette G. Yedinack.

The Counseling Center of the University of Chicago will offer a workshop on **A Therapeutic Approach to Individuals and Groups** for a two-week period, June 25 to July 6. It is offered to professional people whose work involves problems of communication in human relations. The faculty and the staff of the Counseling Center will bring to the workshop the current theory, practice, problems, and research in the field of client-centered therapy. For further information write Dr. Carl R. Rogers, University of Chicago, 5737 Drexel, Chicago 37, Illinois.

A workshop in the **Rorschach Technique of Personality Diagnosis and Other Projective Techniques** will be held on July 25-August 3 at the Asilomar Conference Grounds, Pacific Grove, California. It will be directed by Bruno Klopfer. For detailed information write to Dr. Bruno Klopfer, P. O. Box 2971, Carmel, California.

A seminar on **Projective Techniques and Personality Study** will be held at the Applied Psychology Centre of McGill University on May 14-26, 1956. The instructors will be Herbert Dörken, Jr., Heinz Lehmann, and Ernest G. Poser. Further information may be obtained from Dr. C. E. Webster, Applied Psychology Centre, McGill University, Montreal, Quebec.

An **International Workshop on Human Relations in the Pacific Area** will be held at the University of California at Los Angeles, June 20 through July 26, 1956. The workshop is being co-sponsored by the National Conference of Christians and Jews. For further particulars write to the Department of Conferences and Special Activities, University Extension, University of California, Los Angeles.

Cornell University will hold its **Second Annual Reading Conference and Workshop** this summer. The Conference is scheduled for July 23-25 and the Workshop will follow, terminating on August 10. For information write to the Director of the Summer Session, 356 Day Hall, Cornell University, Ithaca, New York, for information.

On February 1, 1956, a new clinic for retarded children, called the **Child Evaluation Clinic**, was established at the Washington University School of Medicine, St. Louis, Missouri. The Clinic is sponsored jointly by the Department of Psychiatry and

Neurology and the Department of Pediatrics of the medical school. Staff members include psychologists, social workers, and representatives of the various medical disciplines which contribute to the study and care of the retarded child. The functions of the Clinic are to provide both diagnostic and counseling services for retarded children and their families, to work with various community agencies which offer services to retarded children, and to serve as a research and teaching center in the field of mental retardation. Psychological staff members include Edward Manley, Claire Ernhart, and Bettye M. Caldwell, director.

The College Entrance Examination Board announces its interest in research on nonintellectual aspects of college success, encompassing research on social, attitudinal, personality, situational, or other relevant factors. Social scientists who are interested in this research are invited to submit short preliminary statements including: (a) a statement of the factors they are interested in studying, the hypotheses involved, the criteria of college success to be employed, and the approximate study design to be followed, (b) an estimate of the cost of preparing a detailed research proposal in this area, (c) an estimate of the total cost of the study that would be proposed, and (d) a statement concerning the research personnel and facilities that would be available for such a study and the schedule that would be observed. Research is desired which will result in instruments predictive of college success as measured either by intellectual and/or nonintellectual criteria, these instruments being such as are suitable for mass administration to high school students and minimally coachable. Research plans may include smaller pilot studies on a limited number of subjects in a restricted geographical or educational environment but should aim at final results which are broadly generalizable both with respect to high school student bodies and institutions of higher education in the United States. Address all correspondence to Dr. Joshua A. Fishman, Research Associate, College Entrance Examination Board, 425 West 117th Street, New York 27, N. Y.

Equipment valued at \$10,000 has been presented to the psychology department at **Trinity University**, San Antonio, Texas, by the Air Force Personnel and Training Research Center, with headquarters at Lackland Air Force Base. It is, for

the most part, standard apparatus for psychological research and will be of great value in the development of the psychology laboratory of Trinity.

The 40 national winners of this year's **Science Talent Search** were chosen by Harold A. Edgerton and Stuart Henderson Britt, psychologists, and Rex A. Buxton, psychiatrist. Scholarships for these winners are provided by the Westinghouse Educational Foundation.

APA Committee Meetings. The Education and Training Board, Edward S. Bordin, chairman, met at Ann Arbor on November 5 and 6, and again on January 31, and February 1. In the first meeting preliminary reports of the various committees and plans for further work were considered. Robert McLeod and Dael Wolfe were appointed as a task committee to collate information and point up the problems and possible approaches to the study of selection and recruitment of students for psychology. The proposal from the Scientific Development Board for a summer seminar on Experimental Design and Inference in Psychology was referred to the Committee on Doctoral Education. The request from the Scientific Development Board that a conference be sponsored on the training of research psychologists for 1965 lead to consideration of developments during the next decade which will influence psychology. The meeting on January 31 and February 1 was given almost wholly to outlining these anticipated developments. In addition, recommendations were prepared for simplifying the structure of the E & T Board and its committees.

The Committee on Evaluation, Charles R. Strother, chairman, met November 3 and 4 at Ann Arbor. The approved doctoral training programs were reviewed on the basis of the annual reports from each institution, and plans made for evaluation or advisory visits to eleven universities and forty-one practicum training agencies.

The Committee on Undergraduate Education, Frank W. Finger, chairman, met on January 28-29 at The University of Virginia. The responses from approximately six hundred colleges and universities to a questionnaire on undergraduate programs in psychology were read and plans made for further tabulation and analysis of the data.

The Committee on Doctoral Education, Stanford C. Erickson, chairman, met at the APA office in Washington on January 16 and 17. Much of the

deliberation was directed to identifying the issues to be dealt with in any attempt to formulate a program of doctoral education, particularly the question of a core curriculum.

In the interest of facilitating exchange of thinking among workers and of encouraging more action, the **Committee on Gifted Children of the Division of School Psychologists** of the American Psychological Association is undertaking the compilation of a Directory of psychologists, educators, and others who are involved in programs of any sort for gifted children or who are engaged in research or writing concerning gifted children. All persons who are interested in appearing in the Directory are invited to communicate with the chairman of the Committee, Dr. D. W. Kern, 22 Louis Street, Trumbull, Connecticut, who will return to the writer the Directory information blank to be filled out. The Committee wishes also to receive as many suggestions as possible of names and addresses of persons with whom the Committee may initiate correspondence to determine their interest in being listed in the Directory.

Washington News. Appropriations of \$4,000,000 for the Children's Bureau of the Department of Health, Education, and Welfare have been proposed for prevention and treatment of mental illness in school children. The bill has been approved by the House Appropriations Committee.

Projects of the \$2,000,000 cooperate research program for which the Office of Education has asked appropriations were based on recommendations of a committee in which psychology was well represented. J. Cayce Morrison was chairman, Erick L. Lindman of George Peabody College for Teachers was a member, and the three other members were psychologists—Frank Hubbard of NEA, H. H. Remmers of Purdue University and Willard C. Olson of the University of Michigan.

Representative Perkins (Democrat-Kentucky) has introduced a bill to provide for loans to enable needy and qualified students to continue post-high-school education. The bill has been referred to the Education and Labor Committee.

The **Office of Defense Mobilization** has established a new list for the Selective Service System to use as a guide in selecting men with critical civilian skills for enlistment in the Ready Reserve under presidential Executive Order 10650. The

list includes clinical psychologists and high school teachers of science, the latter only in mathematics, physics and biological sciences. Psychologists may also be included under the critical list of "activities" in the production of aircraft, research and development services, and electronic equipment, depending on interpretation by Selective Service.

The newly formed **Committee on Primary Records of the Division of Anthropology and Psychology**, National Research Council announces its sponsorship of a publication series on Microcards, of personality materials collected in non-literate and non-Western societies. The new series which will be entitled "Publications of Primary Records in Culture and Personality" is under the editorship of Bert Kaplan, and is made possible by a grant from the National Institute of Mental Health. Its chief purpose is to make available to research workers in the culture and personality field, the rich personality materials from over 70 societies which have been collected by means of projective tests, life histories, dreams, and interviews. It is hoped that the availability of these raw data will be important in facilitating research and will make possible the investigation of a number of new problems. The series is being published by the Microcard Foundation, an affiliate of the University of Wisconsin Press. Microcard reproduction, which has never before been applied to the problem of the dissemination of original materials in psychology or anthropology, makes possible the reproduction of as many as 60 8½" by 11" pages on a single 3" by 5" card. Thus very small editions are possible at minimum expense. A new pocket Microcard reader has recently come on the market selling for \$25.00 so that work with Microcards need no longer be confined to libraries.

The first volume of the series is planned for May publication. It will include the materials of about 25 workers and will have approximately 4,000 pages of data. The cost to purchasers will be in the neighborhood of 1¢ a page. Future volumes will appear periodically as data become available. Thus far about 75 workers have agreed to contribute their materials to the series and almost 30,000 pages of data are involved. Inquiries concerning the series should be sent to Bert Kaplan, Department of Psychology, University of Kansas, Lawrence, Kansas, or to The Microcard Foundation, Box 2145, Madison 5, Wisconsin.

The Committee on Primary Records plans to conduct an investigation of the significance of the dissemination of primary records in other areas in anthropology and psychology. It will examine the problems involved in the preservation, storage, retrieval and dissemination of such materials and will attempt, with the help of pertinent specialists, to identify those original materials whose general availability is of present or potential scientific importance. The chairman of the committee is A. Irving Hallowell. Other members are Roger Barker, Wilfred Brodgen, Melford Spiro, and John Whiting. Bert Kaplan is executive secretary.

In an effort to ascertain if small colleges possess guidance problems and procedures peculiar to them as small colleges, a **Clearing House for Small College Guidance Ideas** has been established at Parsons College, Fairfield, Iowa. Small colleges across the country are invited to submit to this service their guidance ideas, and in return will receive ideas already submitted.

A limited number of copies of **Clinical Aspects of Counseling with the Disabled** may be obtained from the U. S. Office of Vocational Rehabilitation, Department of Health, Education, and Welfare, Washington 25, D. C. This publication consists of a group of papers presented at the New York APA meeting in the symposium of the same title. These papers cover such topics as the applicability of standard psychological tests to the disabled (Salvatore G. DiMichael), the relationship of psychological test data to therapy (Darrel J. Mase), the application of therapeutic procedures to the disabled (Samuel B. Kutash), and the need for the team approach in counseling with the disabled (Lee G. Sewall).

The **Training News** of the National Education Association's National Training Laboratories reports that many summer workshops and laboratories in human relations training will be held this summer. A list of them, ranging from those at Bethel, Maine in June and July to one in Santa Barbara, California in August, may be obtained from the National Training Laboratories at the National Education Association in Washington.

UNESCO has published a volume, **Education and Mental Health**, based on a three-week conference of 30 European specialists from 13 nations. The volume was completed by psychologists in the UNESCO Department of Education, in collaboration with experts in 20 countries. The information from the conference, held in 1952, was studied and unified under the editorship of W. D. Wall.

The **German Social Science Digest** has recently been published by the Atlantik-Brücke, a group of German citizens who want to foster better understanding between the United States and Germany. The Digest is available through booksellers who can order it from the Claassen Verlag, Hamburg 13, Parkallee 42. The price is \$1.00. Three thousand copies have been distributed gratis to American universities and colleges.

The booklet, **Psychologists in Action**, which APA has published in association with Public Affairs Press, is finding acceptance among state associations and university departments. Among those schools which have ordered a hundred or more are Louisiana State University Medical School, The Johns Hopkins University, Dartmouth College, University of Virginia, and Catholic University of America.

The **Canadian Journal of Psychology** is offering a special reduced subscription rate of \$3.00 to APA members, beginning with the 1956 volume. Subscription orders should be sent to: Secretary-Treasurer, Canadian Psychological Association, 3600 McTavish Street, Montreal 2, P.Q.

The **Russell Sage Foundation** offers postdoctoral residencies for training and experience in applications of behavioral science to health and welfare. The residencies are designed to offer qualified sociologists, social psychologists, and anthropologists an opportunity to receive specialized training in operating agencies and professional schools. Stipends range from \$3,500 to \$5,000. For further information write to the Russell Sage Foundation, 505 Park Avenue, New York 22, N. Y.

Convention Calendar

American Psychological Association: August 30-September 5, 1956; Chicago, Illinois

For information write to:

Dr. Fillmore H. Sanford
1333 Sixteenth Street, N.W.
Washington 6, D. C.

American Society of Adlerian Psychology: April 28-29, 1956; Chicago, Illinois

For information write to:

Dr. Irvin Neufeld
103 East 86th Street
New York 28, N. Y.

Southeastern Psychological Association: April 29-May 1, 1956; Atlanta, Georgia

For information write to:

Dr. M. C. Langhorne
P. O. Box 2
Emory University, Georgia

American Psychiatric Association: April 30-May 4, 1956; Chicago, Illinois

For information write to:

Mr. Austin M. Davies
Room 310
1270 Avenue of the Americas
New York, N. Y.

American Association on Mental Deficiency: May 1-5, 1956; Richmond, Virginia

For information write to:

Dr. Thomas L. McColloch
Research Department
Letchworth Village
Thiells, New York

Midwestern Psychological Association: May 3-5, 1956; St. Louis, Missouri

For information write to:

Dr. Donald W. Fiske
5728 South Ellis Avenue
Chicago 37, Illinois

American Association for Cleft Palate Rehabilitation: May 3-5, 1956; Kansas City, Missouri

For information write to:

Dr. Samuel Pruzansky
808 South Wood Street
Chicago 12, Illinois

Canadian Psychological Association: June 7-9, 1956; Ottawa, Canada

For information write to:

Dr. Dalbir Bindra
3600 McTavish Street
Montreal, P. Q., Canada.

Rocky Mountain Branch of the APA: June 11-13, 1956; Grand Teton National Park, Wyoming

For information write to:

Dr. Wilson J. Walthall, Jr.
Department of Psychology
University of Wyoming
Laramie, Wyoming

Second International Congress on Acoustics, in conjunction with the Fifty-First Meeting of the Acoustical Society of America: June 17-24, 1956; Cambridge, Massachusetts

For information write to:

Mr. John A. Kessler
Acoustics Laboratory
Massachusetts Institute of Technology
Cambridge, Massachusetts

National Association of Student Personnel Administrators: June 19-22, 1956; Berkeley, California

For information write to:

Dean Fred Turner
152 Administration Building
University of Illinois
Urbana, Illinois

Association for Physical and Mental Rehabilitation: June 25-29, 1956; Augusta, Georgia

For information write to:

Mr. Phil Davis
2801 Jennings Road
Augusta, Georgia

World Federation for Mental Health: August 12-17, 1956; Berlin, Germany

For information write to:

Secretary General
World Federation for Mental Health
19 Manchester Street
London W. 1, England

APPLICATION FOR HOTEL ACCOMMODATIONS

Mail this application to:
APA Housing Bureau
Hotel Sherman
Chicago 1, Illinois

N.B. Single rooms are very scarce. Please try to share a twin bedroom with another member.

Please make reservations noted below:

Hotel Sherman _____ Hotel Morrison _____

..... Single room(s) @ \$..... to \$..... per room

..... Double room(s) @ \$..... to \$..... per room

..... Twin bedroom(s) @ \$..... to \$..... per room

..... Suite(s) @ \$..... to \$..... per room

..... Dormitory type room, four to a room. NAMES OF ALL OCCUPANTS MUST ACCOMPANY THIS APPLICATION.

Date of arrival..... atA.M.
P.M.

Date of departure.....

Room occupants: (Be sure to give the names of all occupants and bracket those sharing a room.)

Name (please print) Sex Address City State

Mail confirmation to: (Signed).....

Address.....

(Copies of this form may be obtained from the APA Central Office)

HOTEL INFORMATION

	Single Room	Double Bedroom	Twin Bedrooms	Suites	
				2 rooms	3 rooms
SHERMAN:	\$6.45-12.95	\$9.45-16.95	\$11.95-17.95	\$22.95-36.95	\$52.40 up
MORRISON:	\$6.50-12.00	\$9.50-15.50	\$12.00-16.00	\$25.00-41.00	\$42.00 up
Dormitory Rooms (4 persons to a room)					
SHERMAN:	\$3.00 per person				
MORRISON:	\$3.00 per person				

Health and Accident Insurance Notice

Representatives of the Liberty Mutual Insurance Company will maintain booths at the Midwestern Psychological Association Convention in St. Louis, and at the American Psychological Association Convention in Chicago. They will be happy to answer any questions concerning the Health and Accident Insurance Plan and will accept applications from APA members during the conventions.

----- ADVANCE REGISTRATION FORM -----

SIXTY-FOURTH ANNUAL CONVENTION OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

Chicago, Illinois, August 30-September 5, 1956

Please type of print:

Name: Miss _____
Mrs. _____
Mr. _____
Dr. _____
Last First Middle

Professional Affiliation: _____
(to appear on badge)

City

State

APA DAY, SUNDAY, SEPTEMBER 2

Tickets for the APA Day Dinner will be \$2.50

I plan to attend the APA Day Dinner (noon)

..... Please reserve ticket(s) for me

..... Check for \$..... enclosed for dinners

..... I do not plan to attend the APA Day Dinner

Please check one:

APA Life

Member, Student Journal Group

APA Fellow

Foreign Affiliate

APA Associate

Nonmember

Note: Registration from nonmembers must be accompanied by a registration fee of \$2.50. The registration fee is waived for Foreign Affiliates and Members of the Student Journal Group.

Please mail this form before August 15 to John Cotton, Department of Psychology, Northwestern University, Evanston, Illinois. Do not mail it to the APA Central Office.

When you arrive in Chicago, pick up your badge and other Convention materials at the Advance Registration Desk on Mezzanine Floor of the Hotel Sherman.

(Copies of this form may be obtained from the APA Central Office)



New 1956 Publications
in *THE CENTURY PSYCHOLOGY SERIES*

THEORIES OF LEARNING, 2nd Edition

By **ERNEST R. HILGARD**

- Presents an up-to-date picture of modern learning theories.
- Includes new chapters on "Freud's Psychodynamics," "The Emergence of Mathematical Models," and "Current Developments."
- Contains a clear and sympathetic exposition of the most influential positions in learning theory which are current among psychologists doing research in the field.
- Evaluates strong and weak points of each theory.

563 Pages, \$5.50

THE PSYCHOLOGY OF HUMAN DIFFERENCES, 2nd Edition

By **LEONA E. TYLER**

- Incorporates the large amount of significant research in the field of differential psychology published since World War II, the new material comprising more than half of the new edition.
- Analyzes and describes the nature and extent of measurable differences in individuals and groups.
- Organizes what is known about individual differences in a number of measured psychological characteristics and discusses the major varieties of group differences.

562 Pages, \$6.00

EXCEPTIONAL CHILDREN

By **FLORENCE L. GOODENOUGH**

- Describes the major types of exceptional children: the highly gifted, the intellectually retarded, those with special educational and other handicaps, and those with physical handicaps.
- Points up the special problems faced by the child who differs from the generality, and indicates ways by which these problems may be minimized.
- Discusses causes, symptoms, methods of treatment for each case.
- Cites many illustrative case histories.

JUST PUBLISHED

APPLETON - CENTURY - CROFTS, INC.

35 WEST 32nd STREET, NEW YORK 1, NEW YORK

Expansion of the . . .

SYSTEM DEVELOPMENT DIVISION

of
The RAND Corporation

WORKING ON AN UNUSUAL TEAM-TRAINING PROGRAM FOR THE
AIR DEFENSE COMMAND HAS MADE POSITIONS AVAILABLE FOR:

- **PSYCHOLOGISTS** INTERESTED IN APPLIED TRAINING PROBLEMS
- **PSYCHOLOGISTS** WITH A MATHEMATICAL BACKGROUND TO CARRY ON PSYCHOLOGICAL WORK IN AN AREA INVOLVING HIGH-SPEED ELECTRONIC COMPUTERS

PROGRAMMERS, or persons interested in learning to program high-speed electronic computers

Also,

SOCIOLOGISTS, MATHEMATICIANS, ELECTRONIC ENGINEERS

For further information write to

DR. WILLIAM C. BIEL
The RAND Corporation
1700 Main Street, Santa Monica, California

THREE RORSCHACH METHOD WORKSHOPS

Summer Session 1956

Western Reserve University
Cleveland

Conducted by—Marguerite R. Hertz, Associate Clinical Professor of Psychology

For qualified psychologists, psychiatrists, research workers, graduate students in clinical psychology having at least a full academic year's study or the equivalent, psychiatric social workers, counselors.

Workshop I June 11–15 inclusive

INTRODUCTION TO THE RORSCHACH METHOD: Lectures, demonstrations in the hospitals, supervised training periods.

Workshop II June 18–22 inclusive

INTERMEDIATE COURSE in the interpretation and clinical application of the method, Lectures, demonstrations in the hospitals, full case interpretations.

Workshop III June 25–29 inclusive

ADVANCED COURSE in the interpretation of Rorschach Records of various personality and clinical groups. Participants may submit records for study.

Admission limited to professionally trained persons in psychology, psychiatry, and psychiatric social work, who have had at least one full year of experience with the Rorschach Method.

FEE: \$44.00 per workshop

All day sessions—one evening session—Each Workshop limited to 20 persons.

One academic semester hour credit per Workshop if desired upon registration and presentation of transcript of college record.

Application forms may be obtained from:

**THE DIRECTOR OF ADMISSION, Western Reserve University, 2040 Adelbert Road,
Cleveland 6, Ohio**

"a landmark"

"... in the evolution of psychology as an organized science . . . this new and completely rewritten edition is an even better book than was the first edition. This is true because psychology has grown in scientific stature during the twenty years that have

LAURANCE FREDERIC SHAFFER
EDWARD JOSEPH SHOBEN, JR.

THE PSYCHOLOGY OF ADJUSTMENT

A DYNAMIC AND EXPERIMENTAL APPROACH TO PERSONALITY AND MENTAL HYGIENE

passed since the first edition appeared. In the present volume a large body of recent research is evaluated. Many of the findings of these investigations throw new and clarifying light on the understanding of adjustive behavior, the make-up of the personality, and mental hygiene. . . ."

from the Editor's Introduction

BY LEONARD CARMICHAEL

—a spring 1956 publication—

SECOND EDITION

HOUGHTON MIFFLIN COMPANY

50 Readings

Student price, \$1.95

READINGS FOR EDUCATIONAL PSYCHOLOGY

WILLIAM A. FULLAGAR, HAL G. LEWIS, CARROLL F. CUMBEE
All of the University of Florida

- ★ **To accompany the textbook.** Makes it easy for the instructor to assign—and the student to read—worth-while readings by outstanding authors.
- ★ **Inexpensive (\$1.95).** The cost is low enough for each student to have his own copy at hand for the prompt reading of assigned articles.
- ★ **Challenging, interesting, substantial.** The readings are readily understandable, yet not superficial; challenging, yet not too difficult. Their average length is nine pages.
- ★ **For prospective teachers and in-service teachers:** to help them better meet their everyday problems.

With interpretive headnotes and biographical footnotes

March, 1956

500 pages

5 $\frac{5}{8}$ x 8 $\frac{3}{8}$

Hard cover

\$1.95

THOMAS Y. CROWELL COMPANY

432 Fourth Avenue

New York 16, N. Y.

New and Important Ronald Books . . .

Principles of General Psychology

GREGORY A. KIMBLE, *Duke University*

READY IN APRIL. Lucidly and interestingly written at the beginner's level of understanding, this new college textbook covers the core content of the major curriculum in psychology. Throughout, psychology is treated as an objective, observational science. Methodological in flavor and full of absorbing experimental detail, the book presents its topics in four main sequences.

The first introduces the student to the broad field of study and to basic methodology, including the characteristics and testing of intelligence. A second group of chapters is devoted to sensation and perception. A third deals with the rudiments of developmental psychology and learning theory.

A final group treats behavior dynamics, including psychopathology.

The importance of statistical methods in psychology is stressed, and the student is shown how each technique is applied to concrete investigations. Sensation and perception are presented to permit a variety of approaches at several levels of difficulty. Necessary information about physiology is introduced functionally, in direct connection with psychological points under discussion. Throughout the book, important areas are covered largely in terms of key experiments. Includes bibliography and numerous carefully chosen illustrations. 243 ills., tables; 415 pp.

DEVELOPMENTAL PSYCHOLOGY

**LOUIS P. THORPE, *University of Southern California*; and
WENDELL W. CRUZE, *D. C. Teachers College; Johns Hopkins University***

ALSO NEW. A textbook focusing on human growth and development, with emphasis on the formative years from birth through adolescence. Examines physical, intellectual, emotional, moral, and social growth of the individual, stressing en-

vironmental influences of home, school, and community. Discusses emotions, intelligence, mental health, and personality dynamics, drawing on the latest research findings and scientific interpretations. 144 ills., tables; 692 pp.

THE ABNORMAL PERSONALITY

ROBERT W. WHITE, *Harvard University*

JUST OUT. For the beginning course in abnormal psychology. Book presents the study of disordered personalities as it relates to a larger understanding of human nature. Fundamental ideas are introduced in carefully ordered sequence and are illustrated by informative case histories. Examines

maladjustment and neurosis, discussing normal development and showing how it can go astray. Covers: psychotherapy, delinquency, psychosomatic disorders, brain injuries, the major psychoses, etc. 2nd Ed. 644 pp.

An Introduction to CLINICAL PSYCHOLOGY

**Edited by L. A. PENNINGTON, *University of Illinois*; and
IRWIN A. BERG, *Northwestern University*—with 26 Contributors**

THIS POPULAR textbook reviews the historical development, current problems, and professional responsibilities in clinical psychology. Discusses common reference frames, illustrating the growing trend in the synthesis of selected clinical and experi-

mental findings. Describes clinician's tools—stress-ing rationale, reliability, validity, objectivity; explains clinical techniques in psychological treatment. 2nd Ed. 69 ills., tables; 709 pp.

COUNSELING: THEORY AND PRACTICE

**HAROLD B. PEPINSKY and PAULINE NICHOLS PEPINSKY
—both *The Ohio State University***

DESIGNED FOR senior and graduate courses, this textbook is based on the thesis that the counselor should be a researcher as well as a practitioner. After a concise, undogmatic survey of current approaches, it uses the reinforcement theory of

learning and a recent interpretation of anxiety as an example of applying theory more rigorously to practice. Proposes a formal learning model to organize observations and inferences and to set up hypotheses about behavioral changes. Illus., 307 pp.

THE RONALD PRESS COMPANY • 15 E. 26th St., New York 6

CORRELATION COEFFICIENTS:

Correlation coefficients are computed from your data on the basis of the following specifications: 100 Cases; 20 Variables; 2 Digits per Variable. Normal Delivery: 7 to 10 Days. COMPLETE with correlation coefficients, standard deviations, means, Sum of X, Sum of \bar{x}^2 , Sum of XY, and Sum of YX (for checking), a listing of each case and of each variable (for your permanent files), and, duplicates of all reports. (NOTE: We can handle 2 to 300 or more variables, and up to 10,000 cases or more. Tell us your needs.) ©1956

- ☐ Please provide me with a firm estimate on obtaining correlation coefficients (as above) on the basis of _____ cases, and _____ variables. There are _____ variables of 1 digit each; _____ of 2 digits; _____ of 3; and, _____ of 4 digits each.

OTHER SERVICES:

DATA - A newsletter containing methods and techniques of handling research data. Your notes, letters, and replies provide us the criteria of knowing what information is of value to you.

- ☐ Please place me on your free permanent mailing list for **DATA**.

PRE-CODING SERVICE - Forward a copy of your questionnaire to the attention of PRE-CODING SERVICE, Research Tabulating Bureau. We will apply statistical pre-codes for IBM machine work to your questionnaire without charge. (Pre-codes help you to eliminate coding costs and other expenses.)

- ☐ Please forward a sample copy of your numerical coding form #16. (Additional copies: 2 for \$1.)
- ☐ Please forward a sample copy of your multiple punch coding form #18. (Extra copies: 10¢ each).
- ☐ Please forward a sample copy of your 2-digit coding form #20. (Extra copies: 10¢ each).

METHODS - When you are contemplating a research study, you will find us ready to help you reduce your cost for statistics through the reduction of man-hours and machine-hours through efficient systems. Let us consider your problem.

- ☐ Please forward a sample copy of your Cross-Tabulating Check-Off Sheet #19. (Extra copies: 10¢ each).
- ☐ We have need from time to time for ☐ keypunching, ☐ calculating, ☐ tabulating services.

Name _____ Title _____

Organization _____

Type of Business _____

Street Address _____

City _____ Zone _____ State _____

--- CLIP ADVERTISEMENT AND MAIL TO ---

Research Tabulating Bureau
POST OFFICE BOX 7
INDIANAPOLIS 6, INDIANA

Are You the "Incompleat" Psychologist?

• *Contemporary Psychology*, the new APA journal of book reviews and educational film analyses, is now providing many psychologists with up-to-the-minute news of psychology's books. Are you reading CP?

• *Contemporary Psychology* belongs on your reading shelf—if you appreciate critical, evaluative book reviews covering psychology's wide world of books—if you haven't time to appraise all the new volumes in your specialized field—if you, as a constant reader of the *Psychological Bulletin*, *Journal of Applied Psychology*, *Journal of Abnormal and Social Psychology*, or *Journal of Consulting Psychology*, still wish to keep posted on the new books formerly reviewed in these journals.

Send In Your Subscription Now
While Copies of Early Issues of CP
Are Still Available

Contemporary Psychology

1333 Sixteenth Street, N. W.
Washington 6, D. C.

Subscription rate: \$4.00—to APA members and participants of the Student Journal Group; \$8.00—to all others (add \$.50 for foreign postage, please).

WILEY**BOOKS****EDUCATIONAL PSYCHOLOGY in the CLASSROOM**

By Henry Clay Lindgren, *San Francisco State College*. Modern research findings in psychology and other behavioral sciences are brought to bear on everyday problems faced by teachers in this readable and well-documented book. The author covers such vital topics as self-concept, emotional maturity, the role of attitudes in learning, psychological needs, and developmental tasks. 1956. 521 pages. \$5.00.

The PSYCHOLOGY of INDUSTRIAL CONFLICT

By Ross Stagner, *University of Illinois*. This is the first book to treat union-management relations as a psychological problem. Drawing on theories and findings in the fields of social psychology and the psychology of personality, it offers a broad analysis of such matters as leadership in unions and management, negotiation tactics, strike phenomena, and labor-management cooperation. 1956. 550 pages. \$8.00. Also available in college edition.

The ESSENTIALS of EDUCATIONAL STATISTICS

By Francis G. Cornell, *University of Illinois*. A modern introduction for the reader whose interest in statistics lies in its ability to help solve problems in education. Emphasis is on the routine computational procedures involved in using statistical formulas; only a minimum of mathematical training is necessary for full understanding. One of the Wiley Publications in Statistics, Walter A. Shewhart and S. S. Wilks, Editors. 1956. 375 pages. \$5.75.

OPINIONS and PERSONALITY

By M. Brewster Smith, *Social Science Research Council*, Jerome S. Bruner, *Harvard University*, and Robert W. White, *Harvard University*. In this unique work the relationship between opinions and personality are studied by means of an intensive investigation of ten normal adult subjects. The book provides valuable new insights into the formation of opinions and preferences. 1956. 294 pages. \$6.00.

LANGUAGE, THOUGHT, and REALITY**Selected Writings of Benjamin Lee Whorf**

Edited with an introduction by John B. Carroll, *Harvard University*. Foreword by Stuart Gilbert. Here in a single convenient volume are gathered together the influential writings of one of America's outstanding thinkers in the fields of linguistics and anthropology. It contains nearly all of Whorf's major papers pertaining to the so-called "Whorfian" hypothesis—that the structure of language influences thought processes and our perception of the world about us. A Technology Press book, M.I.T. 1956. 278 pages. \$6.00.

PSYCHOSOMATICS

By Max Hamilton, *University of Leeds School of Medicine*. This book (1) presents psychosomatics as a direct development of modern biological theory, (2) demonstrates the necessity of looking beyond the assumptions of simple mechanisms in illness, and (3) illustrates the importance of the endocrine system in psychosomatics, showing its interaction with nervous functioning. 1955. 225 pages. \$4.25.

Send today for your examination copies.

JOHN WILEY & SONS, Inc. 440 Fourth Avenue, New York 16, N.Y.

*New
Holt
Texts*

ELEMENTARY PHYSIOLOGICAL PSYCHOLOGY

wenger, jones, jones

Believing that psychology is basically a biological science, the authors intend to provide a working knowledge of biological facts and principles. The text is aimed for the second semester of the introductory course.

LEARNING AND MOTIVATION

bugelski

Providing a realistic appraisal of the current status of learning theory, the author emphasizes the correlated area of motivation and offers a combination of the Hull and Hebb theories with positive appreciation of all other viewpoints.

MENTAL HYGIENE, Revised

klein

This text offers a thorough, scientific treatment of mental hygiene for college courses. The author stresses the importance of public enlightenment regarding mental health and the need for promoting additional legislative appropriations and for supporting research efforts.

PSYCHOLOGICAL DIAGNOSIS AND COUNSELING IN THE SCHOOLS

marzolf

This unique new text brings together the diagnostic and counseling techniques needed by the school psychological worker. The author's work is based on the premise that there is a common body of knowledge and understanding required by the professional trainee, whether he plans to work at the elementary or secondary school level and regardless of his particular title.

EDUCATIONAL PSYCHOLOGY, Revised

stephens

Oriented to the work of the classroom teacher, this text centers about the theme of educational growth, the factors affecting it and the means of facilitating it. The book brings into focus those facts and principles of psychology which will enable the teacher to understand the student and his development.

WORKBOOK IN EDUCATIONAL PSYCHOLOGY

danskin

This student workbook is geared to the Revised Edition of Stephens' Educational Psychology.

EDUCATIONAL PSYCHOLOGY

Fourth Edition

jordan

The main objective of this text is to acquaint the prospective teacher with the psychological principles which will help in adapting methods and materials of instruction to levels of growth.

Henry Holt and Company, Inc.

New York 17

San Francisco 5



BINDERS

... are now available for all APA journals. These are sturdy, wire-post multiple binders in dark blue imitation leather, uniformly stamped in gold foil.

Journals may be easily inserted and removed.

Specify quantity and journals for which binders are desired, or write for descriptive folder and order blank.

Price: \$1.50 plus 15¢ postage each

American Psychological Association

1333 Sixteenth Street N. W.

Washington 6, D. C.

APA Members and Journal Subscribers—Are you going to move?

If you move—

Your journals will not follow you from your old address to your new one

When you move—

Notify the APA Subscription Office

Formerly, journals that could not be delivered because subscribers had not notified the APA of a new address were reclaimed by the APA, and the journal was remailed to the subscriber at his new address. This was always expensive. Recent changes in the postal laws and regulations have made the expense prohibitive. Undeliverable copies are now destroyed by the Post Office. Subscribers who do not receive a journal because of an address change are charged the regular single issue price for a replacement copy.

So—when you move—

Notify the postmaster at your old address and guarantee that you will pay the forwarding postage.

Notify the APA Subscription Office (1333 Sixteenth St. N.W., Washington 6, D. C.) as early as possible—by at least the fifteenth of the month preceding the month when the change should take effect.

